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AMERICAN VETERINARY REVIEW.

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CONTENTS

	PAGE	
Editorial —European Chronicles.....	411	
Federal Meat Inspection.....	421	
Federal Control of Hog Cholera.....	425	
Last Call for the New Haven Pro- gram.....	425	
Veterinary Education in New York.....	426	
 Original Articles —Veterinary Pro- gress. By M. H. Reynolds.....		427
Experiences with von Behring's Pro- tective Inoculation against Tu- berculosis in Cattle. By J. V. Laddey.	437	
Nitrous Oxide Anesthesia in Ani- mals. By Louis P. Cook.....	446	
The Clinical Examination of the Blood in Veterinary Practice. By Samuel H. Burnett.....	449	
Aconite Poisoning. By B. F. Kaupp.	454	
Acute Indigestion in the Horse: Its Treatment By D. O. Knisley.....	457	
A Treatise on Dog Distemper with Special Reference to Treatment. By J. C. Butcher.....	463	
 Reports of Cases —Leukemia. By A. T. Kinsley.....		466
Urethral Calculus in the Dog. By P. A. Fish.....	469	
 German and Hungarian Review		476
English Review		478
Army Veterinary Department		483
The Etiology of Azoturia		492
Correspondence		493
Society Meetings		494
Minnesota State Veterinary Medical Association.—American Veterinary Medical Association.—Alumni Associa- tion of the New York-American Veteri- nary College.	494	
News and Items		511
Veterinary Medical Association Meetings		515
Publishers' Department		516

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AMERICAN VETERINARY REVIEW.

JULY, 1906.

Correspondents will please note the change in address of Dr. Roscoe R. Bell, from Seventh Avenue and Union Street, to 710 East Second Street, Borough of Brooklyn, New York City

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, FRANCE, May 15, 1906.

VIRULENCY OF MILK FROM TUBERCULOUS ANIMALS.—This subject has been the occasion of many experiments and observations, which the general practitioner probably has not had the opportunity to follow. The virulence had already been demonstrated before the discovery of the bacillus of Koch, whether the milk was taken by ingestion or inoculated. Yet, while some recognized it as infectious only in the case of mammary tuberculosis or very advanced disease, others demonstrated that the bacillus could be found in the healthy udder, by microscopic examination, and also when pulmonary tuberculosis, not far advanced, existed. The *Journal of Zoötechnie* has published from the pen of Prof. Nicholas a very interesting review, which I here resume.

In 1899 Rabinovitsch, by experiment, and contrary to Oster-tag, had come to the conclusion that not only in incipient tuberculosis and without apparent sign of mastitis, but also in the latent form of that disease, detected only by reaction to tuberculin, the milk may contain tuberculous bacilli. In the same year the researches of Adami and Martin, and again those of Rabinovitsch, show that cows which have no other symptom than the faculty of reacting to tuberculin, may eliminate tuberculous bacilli, and that clinical examination cannot be utilized

to recognize the infectious qualities of the milk of those cows.

Besides these positive facts, the following deserve attention: Müller (1899), Ascher (1899), Ostertag (1901), and Weeney obtained negative results with the milk of cows which only reacted to tuberculin; Stenstrom, experimenting with fifty reacting cows, some of them having only latent tuberculosis and the others disease more or less detectable by clinical symptoms, has obtained only negative results by inoculation to guinea-pigs and rabbits. Gehrmann (1895), then with Evans (1901), have revealed the presence of the bacillus of Koch, in the milk of cows having reacted but carrying no tuberculous lesions of the udder.

The question is then studied by a committee, presided over by Dr. Mohler, at Washington. Experiments were carried out with the greatest care, made upon fifty-six cows having reacted to tuberculin, and in ten of which clinical symptoms were present. At the post-mortem of all these cows, the udders were free from lesions, and yet in the milk of thirteen of them there were tuberculous bacilli, and their infectious power was shown by inoculation, feeding, and microscopic examination.

After all these, Moussu, in 1904, has shown that in some cases, in cows "without marked clinical signs of tuberculosis," the udder may carry or eliminate bacilli in sufficient quantity to contaminate guinea-pigs by inoculation.

In 1905 he proved that the milk of those animals may give tuberculosis to sucking calves.

* * *

All these positive facts, confirming those already advanced by Mohler, justify the following conclusions:

- (1) Tuberculous bacilli may be detected in the milk of tuberculous cows, even if the udder does not present serious lesions, either macroscopic or microscopic.
- (2) This udder may eliminate tuberculous bacilli in sufficient quantity to transmit tuberculosis to animals of experiment *through the digestive tract as well as by inoculation*.
- (3) In tuberculous cows the udder may become affected at any time.

(4) The presence of tuberculous bacilli in the milk of tuberculous cows is not constant and varies from one day to another.

(5) Cows that secrete milk containing tuberculous bacilli may have such limited tuberculosis that reaction to tuberculin is the only means by which it can be detected.

(6) Clinical examination or general condition of the animals do not allow conclusions as to the infectious properties of the milk.

(7) The milk of all cows that have reacted to tuberculin must be considered as suspicious and be sterilized before being used.

(8) It would be better to eliminate all tuberculous cows, especially for milk production.

* * *
TUBERCULASE.—On Feb. 8 last, Prof. von Behring made a communication on the "Struggle Against Bovine Tuberculosis and the Hygienic Production of Milk," which was published in the *Deutsche Tierärztliche Wochenschrift*. Its object will, no doubt, interest our readers, even at this late date.

First of all, Behring states that bovovaccination, which consists in the intravenous inoculation of living human bacilli, has for object the immunization of young calves; but such process is not applicable to human tuberculosis. As far as calves are concerned, all that remains to be done is to have bovovaccination enter general practice; this is the business of the agriculturists, and already in some parts of Germany it is as common as the antivariolic vaccination in man.

Sound milk will then be readily obtained. But, in some cases, even under the most favorable conditions, several years will always be required before a number of cows protected against tuberculosis will be found to supply the alimentation of children.

To shorten this period of time, it is necessary to think of the vaccination of subjects more advanced in years. This, however, is not without danger, as it is not rare for a dose of bovo-

vaccine, perfectly harmless for new-born calves, to kill older bovines with symptoms of acute oedema of the lungs.

As to the inoculation of bovovaccine under the skin, the results are not certain, and, again, it may be the starting centre of a local tuberculosis, from which bacilli may escape to pass into the blood and into the milk.

A second point in the question corresponds to the production of the T C announced at the Congress of Paris in 1905. It is known that it is a preparation which does not contain living virus, and consequently unable to allow dangerous bacilli to pass into the milk. But this preparation must also be injected into the circulatory system and its preparation requires such care and expense that its practical use presents the greatest difficulties.

* * *

The third point is the object of the present communication. The author indeed declares that he has discovered a special method by which he preserves the immunizing power of the tuberculous bacilli while destroying their vitality. The product thus obtained has proven itself experimentally very efficacious in subcutaneous injection. Behring calls it *tuberculase*.

It is a semi-fluid preparation, of waxy aspect, which can be transported pretty well, and is of such price as will not prevent its use in general practice. It can be injected not only once or twice, but several times in the space of fifteen days to a month. As subcutaneous injection demands no special technic, it can be done by everybody.

Behring has treated with it not only bovines free from tuberculosis, but also cows which in appearance healthy, had virulent tuberculous bacilli in their milk. In a few weeks the bacilli disappeared.

This observation opens up a perspective full of hope to the point of view of the value of tuberculase in the fight against human tuberculosis.

Yet, and he especially insists on the point, the author has not experimented on bovines having lesions comparable to

those of human pulmonary phthisis, and he claims no scientific basis to admit that this tuberculase can be resorted to in the treatment of such affection. At any rate, at the Congress of Paris he did not intend to speak of a curative agent for pulmonary phthisis, but of a product which used in young animals was able to prevent the development of the disease, and perhaps to act upon the already existing tuberculous centres in such a manner that recovery by the natural forces of the organism could not be interrupted by a new infection. The discovery of tuberculase is a step forward in that direction. Children might from now on be vaccinated with it. For the author, the results of this discovery will be appreciated in a short time and will keep their value for a hundred years or more.

* * *

THE USE OF TUBERCULIN IN DOGS.—Late in March I received from Ohio a letter of inquiry on the use of tuberculin in dogs. The letter got mixed with other papers, and it was only lately that it again came before me. Desirous of getting for my correspondent the proper information, I made several inquiries, and at this late date I send my answer, with apologies for my seeming neglect. I have asked several good authorities here, and the following is the information I have obtained: From Prof. Cadiot, who writes to me on the use of tuberculin in the diagnosis of tuberculosis in dogs: "In this, as in other animals, tuberculin is used in subcutaneous injections, after clipping of the hair and disinfection of the skin with alcohol and sublimate. The injection is usually done in the region situated back of the shoulder. . . . The quantity of the material to inject varies according to the size of the animal. For dogs of medium or of large size, one cubic centimetre of diluted tuberculin is used. For small dogs half a cubic centimetre."

"To declare with certainty that an animal is tuberculous it is necessary that: the thermic reaction reaches or goes beyond 1.5° . If the hyperthermia goes above 0.8° the animal is a suspect and another test is indicated. The absence of reaction does not necessarily imply the absence of tuberculosis; but

these errors of tuberculin are rare and observed only in animals extensively diseased and in which the clinical signs are sufficient for a diagnosis."

Again, it is recorded and printed in classical works: "Tuberculin, without giving positive indications, often gives information which is sufficient to confirm the suspicion. The reaction is between one and two degrees." Prof. Vallée, of Alfort, endorses the above, but considers that tuberculin is not as positive in dogs as it is in other animals—and Mr. Drouin, who I understand made numerous experiments in this direction and gathered some thousand observations, considers the use of tuberculin in dogs as very uncertain, and doubtful in many instances.

* * *

 CANINE DISEASES IN TUNISIA.—European dogs will do well to avoid the climate of Tunisia, as it is very fatal to them. Those which escape are very few and they do not transmit the immunity which they have acquired. But what are the causes of this exceptional mortality? There are four diseases which are serious and fatal to them; distemper for one; rabies, which is kept endemic by the native dogs; a peculiar miasmatic fever, with its septicæmic and anæmic forms, and finally vermiform diseases, the most important of which is oesophageal spiropterosis. This affection is so frequent that it can be said that no dog escapes it during its life—lucky if he does not die with it. The disease seldom passes overlooked, as it is manifested by symptoms more or less serious and sometimes ending in death. They have severe spells of coughing, ending in the ejection of small quantities of glairy substances. Sometimes there is chorea of the diaphragm, giving rise to vibrations of the cheeks analogous to those observed in laryngeal cough. The appetite is lost, the animal loses flesh. Without fever at the beginning, the temperature soon goes up to 40° 40.5° C. The animal becomes very nervous and agitated. It soon drops into a cachectic condition and dies, unless to save it more suffering it is chloroformed. The most careful post-mortem reveals no pathological lesions; all the organs of the thoracic and abdominal

cavities as well as the nervous centres are normal. The œsophagus alone shows something, viz.: globular nodules, of various sizes, perhaps as big as a large nut; it is a pouch with thick walls, divided into small cavities by fibrous bands, and filled with *Spiroptiva sanguinolentæ*, easily recognized by their coloration. This pouch has a small opening, which allows of the escape of the parasite.

The author of this communication, which I have read in the *Record de Médecine Vétérinaire*, mentions that sometimes the dog recovers from all the bad symptoms, although it takes time for all the parasites to pass away from the œsophagus. The treatment which has given him the best results has been the administration of spirits of turpentine in oil.

* * *

REPORT OF THE BUREAU OF ANIMAL INDUSTRY.—The twenty-first annual report of the Bureau of Animal Industry for 1904 has reached me. It arrived late, and I was beginning to fear that I had been forgotten. But I was well rewarded for the waiting, as the report for 1904 contains very interesting material. First, there is a concise biography of Dr. E. A. de Schweinitz, the late Chief of the Biochemic Division, and one of Major H. E. Alvord, of the Dairy Division. The two articles pay deserved professional review of the good work done by those two clever members of the Bureau. After that we enter into articles of essential interest (of course, as usual, handsomely illustrated), viz.: "The Danger of Infection with Tuberculosis by Different Kinds of Exposure," by Dr. E. C. Schroeder and Mr. W. E. Cotton; "Enzymes in Corn stalks and their Relations to Corn-stalk Disease," by T. M. Price, Ph.D.; "Bacillus Necrophorus and Its Economic Importance," by Dr. J. R. Mohler and Dr. G. B. Morse; "Foot-rot of Sheep," by Dr. Mohler and H. J. Washburn; "Etiology of Hog Cholera," by Drs. Dorset, Bolton and McBryde; "Experiments Concerning Tuberculosis," etc., etc. An analysis of any of these valuable articles is scarcely possible within the limited space of these "Chronicles," and I must recommend those interested to secure the Report.

Towards the last part of the work a *résumé* is given of the status of contagious diseases of domestic animals for the past year in ten foreign countries: Belgium, Denmark, France, Germany, Great Britain, Hungary, Italy, Netherlands, Norway and Sweden. I have looked in this Report for similar statistics for the United States, but, with the exception of the introduction made by the Chief of the Bureau in his report headed "Control of Contagious Diseases," I did not find what I expected. And, yet, it certainly must be intended for it, as I noticed records of investigations and researches made on scab in sheep, cattle and horses, on venereal disease of horses, on trichinosis, on foot-rot in sheep, on tuberculosis, black-leg, Texas fever, hog cholera and swine plague, and glanders, all of which are spoken of, with other miscellaneous subjects relating to work done by the Bureau.

And, should this be intended to correspond to the sanitary bulletins of European countries, is it not strange that no mention is made of two diseases which no doubt exist in various parts of the United States, viz.: anthrax and rabies? Is it to be supposed that, like pleuro-pneumonia and foot-and-mouth disease, they have been wiped out? If so, this is the first knowledge I have had of it. For rabies it may be; but for anthrax? If it is, why should the sale of vaccine against it be so booming? Or is there not an error likely to induce a false security among the interested parties, breeders, etc., etc.?

* * *

"PROCEEDINGS" OF THE 1905 MEETING OF THE A. V. M. A.—I found on my table a few days ago the "Proceedings" of the American Veterinary Medical Association for the year 1905. No doubt, it has already been looked at by many of our readers and by the members of the Association, and, therefore, all the good I might say of it and its contents would be of little importance. I have, however, to say a word or so about two parts of the "Proceedings."

I have read with much attention the report of the Committee on Intelligence and Education, and principally that part due to

Dr. G. R. White, on the schools, and, after perusing the various answers which he received from the many schools in the United States and Canada, I am, at page 163, brought to the "summary of suggestions made by the officials or representatives of the various veterinary institutions as a solution of the educational problem." These suggestions are twenty-one in number, and among those which I read some are but the sanction of the conclusions I presented two years ago in my paper to the Association on "Educational Reforms": uniform entrance requirements, uniform curriculum, uniform graduation requirements, uniform degrees, have the laws of all the States the same as regards entrance requirements—all with the reorganization of the Association of Veterinary Faculties and Examining Boards, and inspection of the colleges by the same. Congratulating myself on the probable influence my paper had on the question, I looked for the action of the Association on the report of Dr. White, expecting to find it discussed, amended, corrected—in fact, acted upon. And all that I can find is that the reading and discussion on some parts of the report of the committee was postponed (page 32), and, of course, Dr. White's part was—and nothing more.

Is it possible that no action has been taken, and that the suggestions made, as they were, by the "*officials or representatives of the various veterinary institutions*" have been entirely ignored? Such an amount of good work as that recorded by Dr. White deserved better consideration.

* * *

The "Proceedings" this year are full of very interesting and valuable papers. To examine all will require more space than is at my immediate command. There is among the many good ones (such as the report of the Committee on Diseases, the artificial immunization of cattle against tuberculosis by Pearson and Gilliland, the pathology of tuberculosis by Carl Schulin, the unusual lesions of tuberculosis by Harrison, etc.), one which, I believe, deserves a special interest, "The Spavin Group of Lamenesses," by W. L. Williams, C. W. Fisher, and D. H. Udall.

Of course, to fully appreciate this paper one needs to read it quietly and carefully, and no doubt the few remarks, resuming the subject, which were presented instead of reading the whole paper, have failed to give a good idea of the scope embraced by the authors. I have read it carefully, and, already prepared to receive the ideas through a somewhat similar article to which I alluded in a previous "Chronicle," I think this gathering of affections, heretofore considered as different, almost under one head by their similarity of lesions, of their locations, etc., is a great advance in the classification of those various causes of lameness. To bring those affections under the heading of one constitutional disease, manifested by similar and parallel lesions in various joints, is certainly a great pathological simplicity that Dr. Williams and his assistants have done well to present before our profession. I have no doubt that he anxiously awaits the opinions of his professional friends. I am glad to give him mine.

* * *

THE "REVIEW" THE LARGEST VETERINARY JOURNAL PRINTED IN THE ENGLISH LANGUAGE.—Well, there is no use to deny it; the REVIEW has struck an unusual record—one that has not been beaten. I thought the April issue, No. 1 of Vol. XXX, might speak about it; it did not; and as I did not receive it until late I was unable to recall just what the record was until to-day.

By the close of Volume XXIX the record was established—1429 pages in one volume (say, 1500 pages with the Index), quantity and quality, of course. 1500 pages!—an increase of 500 pages (one-third) in five years—there were but 1045 pages in Volume XXV. The twelfth number alone had 250 pages. It is the record of veterinary journalism! No other monthly veterinary magazine has ever reached that size. *The Veterinarian* in its great day scarcely reached a thousand pages—838 in 1876, 1048 in 1868 (the largest volume).

Will the REVIEW stop at its latest figures? It is doubtful; but it seems as if some changes are becoming necessary. I fear

the size of the bound volume may be unpleasant for many, and if 1500 pages must be the limit of the volume, or should it be larger, would it not be a good plan to divide the year into two volumes? What do the subscribers of our journal say to this?

* * *

DUPLICATE NUMBERS.—Perhaps this may please some of our readers: I have the following duplicates that any subscriber can have to fill missing ones by writing for them: Vol. XXVIII—Nos. 3, 4, 6, 7, 8, 10, 11, 12; Vol. XXIX—Nos. 1, 2, 3, 5, 8, 9, 10, 11, 12.

A. L.

Indexed

FEDERAL MEAT INSPECTION.

Since the last number of the REVIEW was issued, the subject of the conditions in the abattoirs of the country, particularly of Chicago, has formed a scandalous sensation in the newspapers, not only of this country, but of the whole world. In the wake of all the serious accusations, heralded from the highest office in the land, great good will eventually flow to the live-stock and packing-house industries, and in time the meat products of America will not only regain their lost position in the markets of the world, but will take a higher and broader plane and more extensive development than they have ever known. But this will be obtained at a fearful immediate cost to the gigantic live-stock interests—so great that its contemplation is bewildering and impossible. The more sober-minded, practical observers believe that the reforms secured could have been brought about with less injury to our wealth and good name by adopting more rational and less sensational means.

The newspaper hero of the hour (and only of the hour), Upton Sinclair, who first scandalized American meat products in his novel, "The Jungle," is a man totally lacking in experience in abattoir methods, with a strong tendency to magnify what he beheld in his visits to Packingtown. It would be difficult for an untrained observer, in the presence of blood and offal, to analyze the situation and finely appreciate the pres-

ence or lack of sanitation under such circumstances. Blood is apt to be regarded by such laymen as an impurity, particularly if coagulated and trampled, while to the expert it is as wholesome and pure as affecting the surroundings as the most picturesque cut of meat in the tidy butcher's ice-box. Localized tuberculosis of a mesenteric gland is regarded as rendering the carcass unfit for human consumption by the literary reformer, while the highest authorities of the world believe it perfectly proper to pass such meat for human alimentation. Then the committee sent to Chicago to investigate the sensational accusations of Mr. Sinclair were about as unaccustomed to such sights as he, and were as much horrified at what they saw as the yellow press has been in printing their findings. The great surprise to the contemplative mind is that the President did not despatch on this important mission gentlemen who are familiar with and trained in this work, not only in the United States, but those who have studied the conditions in the great abattoirs of Europe, who know what is normal and what is pathological, what constitutes slaughter-house sanitation and the lack of it. The REVIEW is convinced that much could have been done to improve the conditions, and gradually have instituted the reforms which are to follow the nauseating mess with which the papers have teemed, without dealing such a stunning blow to this great source of national wealth, while holding the country up to the derision of the world. Statistics show that for the eleven months ending with May the total exportation of meat products to about seventy five foreign countries and colonial possessions was \$182,000,000, an increase of more than sixty per cent. in the past decade, the United Kingdom being our largest customer. From everywhere come reports of the almost total ostracism of our goods in these countries, and it will be a long time before we regain our lost ground. It will be a fearful sacrifice, and the load will be heaviest upon the stockman and farmer. Yet the great house-cleaning will bring salient reforms, quick and complete. Could these have been secured through more conservative means? Not so precipitately

surely ; but they could have been effected gradually if the authorities worked persistently and intelligently to that end. A sane business man would not institute reforms by publishing his shortcomings to his customers ; he would set about the work in the way calculated to do the least injury to his business.

In the few years that Federal meat inspection has been in operation in the United States, it has performed wonderful service, hampered as it has been by lack of funds and men. Its system of supervision has been admired and lauded wherever its methods were known ; but Congress has ever acted niggardly in responding to the entreaties of the Bureau for larger appropriations, so that its watchfulness could be extended to all abattoirs having to do with foreign and interstate trade, and the recent request of the Secretary of Agriculture for additional funds to secure extra inspectors for the augmented trade with Germany was met with derision, and instead of \$125,000 asked for, he was given but \$20,000. The head of the Bureau has always recognized the necessity for more thorough inspection, and the late Chief persistently sought extension of the work ; but Congress has been so parsimonious that it has utterly failed to protect the great interests of meat production, and finally by a precipitous move paralyzes for the time being at least the entire foreign trade, as well as greatly diminishing the consumption at home.

And when it is all over, we believe that it will be shown that conditions were not one-tenth as bad as they were painted by the amateurs whom the President entrusted with such an important mission. Investigation of the Stock Yards will be undertaken by interests which want and will have the truth, and the work will be done by men who understand what they are doing. The first of these investigations was begun on June 20 under the joint committee of the Chicago Commercial Association, the Illinois Manufacturers' Association, and the Chicago Medical Association. The experts delegated to make the inspection were Dr. W. A. Evans, professor of pathology at the University of Illinois ; Dr. Maximillian Herzog, Chief of the

Bureau of Science of the Philippines; Dr. A. T. Peters, professor of veterinary medicine at the University of Nebraska; Dr. M. P. Ravenel, pathologist to the Pennsylvania State Live Stock Sanitary Board; and Dr. Ludwig Hektoen. What their report will be the REVIEW has no right to anticipate; but we venture to say that there will be a vast modification of the accounts that preceded it. It will, however, not receive the same publicity, and the damage done can only be repaired by long and thorough inspection by experts under wise guidance.

Elsewhere we publish the call of the Civil Service Commission for one hundred and fifty veterinarians to take the examination for meat inspectors, under the bill introduced by Senator Beveridge and amended in the House under the lash of the President, who saw that unless drastic measures were promptly employed the danger to the country would be increased a hundredfold. It was not a time for compromise nor equivocation, and he did well to insist on the most thorough reform in the inspection system.

Even with this greatly augmented force, the inspection service will not be adequate if the business of the country ever assumes its former proportions; but as the bill carries a permanent appropriation of \$3,000,000, a great many more can be secured at the miserly salary of \$1200 per annum. Since the assigned sum is so generous, would not the ends sought be served more thoroughly if the compensation of the inspectors was raised to an amount where men would be attracted to the service through their adaptability rather than by their necessities?

All's well that ends well. Although the meat producers, and the packers, and many collateral interests must suffer, along with the country's reputation, the end will bring a better inspection service at one bound than we could have obtained in gradual advances in a long time; the Government's guarantee upon her products will slowly but surely restore the confidence of the world, and in time we will be upon a sounder and more substantial basis than we ever were at home and abroad.

FEDERAL CONTROL OF HOG CHOLERA.

And now comes from Minnesota a proposition for national control of hog cholera, looking toward final eradication. Congressman McCleary (Minnesota) has a bill which provides a federal appropriation and a plan of coöperation with the various states and territories chiefly interested. The plan contemplates police sanitary control measures and methods as the primary consideration.

Older members of the A. V. M. A. will remember that Dr. Reynolds presented a paper at the Omaha meeting arguing the feasibility of state control methods as applied to this disease, and detailing the methods then on trial in Minnesota.

It is evident that national control and possible eradication of hog cholera would be enormously expensive; but enormous expenditures in this work would be justified by the annual losses, which run well up in the millions, and which must continue to increase under present conditions. So far as the REVIEW is informed, Minnesota is the only state which attempts any serious control work with this disease.

The results in this state, although, perhaps, only partially successful, working as they are without any coöperation from surrounding states, seem to justify the labor and expense which they are putting into it.

In any case, this seems to be a movement which deserves national encouragement.

LAST CALL FOR THE NEW HAVEN PROGRAM.

Secretary Repp issues an appeal for more papers and more applications for membership in the American Veterinary Medical Association in this number of the REVIEW. It is the last opportunity he will have to speak to the members through this journal in behalf of the New Haven meeting, for when the August number is issued, the official program will have been mailed to them. Therefore, the *present moment is the time for action* by those who desire to contribute either papers or members, and the opportunity should not be lost, for the East must

see to it that the forthcoming convention not only does not fall below the magnificent gatherings of the past few years in the Middle West and in Canada, but that the record of yearly improvement which has regularly marked our progress is not broken in the land which gave birth to the National Association and nourished it almost unaided for a quarter of a century. We are fully assured that it is for no lack of love for the organization, for no lack of competent men to prepare the abundance of material at their command—but the state of professional activity is and has been so strenuous that most practitioners feel reluctance in undertaking such work, while the old enemy, procrastination, is largely responsible for their tardiness in responding to the oft-repeated invitation of the Secretary. This latter cause will some of these days work injury to the Association. Let it not be so at New Haven!

In the August REVIEW we will publish the program in detail and with illustrations—of the *personnel* of the officers in charge of the meeting in Connecticut, and notable buildings in the convention city; but it will be on the eve of the convention, with all in readiness for the great event.

Are you ready for New Haven?

VETERINARY EDUCATION IN NEW YORK.

It is more than probable that this subject will form the most important topic of discussion at the Buffalo meeting of the State Society in September.

It appears that our editorial remarks in the May number have brought the profession to a realization of the gravity of the situation, and papers are announced from at least two sources, while our information is that most of the active minds in the organization are preparing to be in readiness for intelligent discussion of the elements which seem to be contributing to our obliteration from the field of educational activity, which but a few years ago was centred in the American metropolis.

ORIGINAL ARTICLES.

VETERINARY PROGRESS.

*Index*BY M. H. REYNOLDS, UNIVERSITY OF MINNESOTA, ST. ANTHONY PARK,
MINN.

Presented to the Twin City Veterinary Medical Association, April 19, 1906.

It is not my intention to argue that young men should study veterinary medicine in preference to other professions. Some young men are especially adapted for the practice of law, others for the practice of human medicine and still others for the practice of veterinary medicine, and every young man should take up the profession which he conscientiously believes to be the one in which he can do the greatest good for society as a body, and himself as a unit.

Young men are occasionally deterred from the study of veterinary medicine by a fear that they would not be so highly thought of in the community as if they studied human medicine or law or theology.

I became convinced years ago that regardless of profession or business, providing it is an honorable one, men are usually given about the social rank and recognition that they deserve. If a lawyer or physician is uncultured in speech and ungentlemanly in manner he is ranked as a boor, regardless of the fact that he is a member of a highly honored profession. If a veterinarian is well educated and a gentleman, he is recognized as such. I know plenty of veterinarians in this State who are so recognized and treated, and I am personally acquainted with veterinarians all over the United States who are recognized as scholarly gentlemen.

In 1890 the two years' course was common all over the United States and Canada. There were but few exceptions. The change to a three-year course was so rapidly made during the early 90's that within a few years there were but two veterinary schools of any prominence in the United States or Canada

that granted diplomas at the completion of a two years' course. We now have at least two four-year schools.

Nearly every State in the union having within her borders a reasonable number of veterinarians has State and local veterinary associations, which meet regularly and discuss professional matters just as do similar associations of physicians. For 43 years we have had a national association. A few years since we decided to enlarge and the name was changed from the United States Veterinary Medical Association to the American Veterinary Medical Association. None but graduates of colleges which furnish satisfactory courses of at least three years are eligible to membership.

Our current literature is abundant.

But after the young man has finished the high school, academic or collegiate course and then this prescribed three or four year veterinary course and graduated, what does the world offer him? What business prospects or what opportunities to gain reputation are there to justify the time and expense involved? It is not my intention to paint the prospects for a young veterinarian in untrue colors, for every intelligent veterinarian and stockman knows that veterinary practice during past years has had its ups and downs; but the stockmen themselves, the business men in our great cities and our medical brethren have suffered something from this same condition. There is a present ratio of three farm animals to each human being, and less than one veterinarian for each ten physicians. The live stock valuation in the United States was estimated several years ago at \$2,000,000,000. Two hundred and fifty million dollars worth of live stock were then sold annually in Chicago. I give these figures to illustrate the need for veterinary service, and the relative scarcity of the supply, not for the purpose of giving an impression that veterinary practice is a universal bonanza, for there are practitioners in veterinary as in human medicine who can scarcely keep their laundry bills paid.

The Government Bureau of Animal Industry is now offering positions for veterinarians as meat and live stock inspectors at

the great slaughter-houses and ports of entry or shipment. Bureau inspectors must be graduates of recognized veterinary colleges. It has been so ordered by Congress. The Government is already employing a large number of trained veterinarians in these capacities and the work is growing.

In nearly every state and territory there is a position for a state or territorial veterinarian or an officer with equivalent duties, and places for a number of deputies. Many of our large cities have city veterinarians in constant employ. There are places in our agricultural colleges and experiment stations for veterinarians who have a taste for work as teachers and experimenters.

But granting the importance of all these things, we must still recognize that the great field for our graduates must always be that of actual practice. The percentage of young men who will go into actual practice must always be very large in proportion to that of those who enter these other fields, and is not the prospect for the general practitioner encouraging? Veterinarians in private practice are all making good livings. Some of them are accumulating considerable wealth.

There can be no question concerning the existence of a considerable number of desirable locations for practice. To illustrate this point, I may say that I have recently been conducting correspondence with veterinary colleges and recent graduates, in an effort to induce a number of desirable men to take up practice in our State during the coming year. I have been able to state that we have 31 county seats in Minnesota without graduates; at least 13 other places that offer desirable locations, where men could be located without injurious competition. Quite a number of young men have written me concerning details for the various places suggested, and in their letters they made mention of the fact that they already had very desirable places in mind, and would like assurances that Minnesota could offer something still better.

I recently assisted a very worthy young man to select a location for practice in this State. I wrote for him to prominent

men in several places, and it was surprising, even to one familiar with the situation, to realize how anxious the live stock breeders and farmers in general were to have reliable men locate in their various neighborhoods. It is certainly not at all common for residents of Minnesota cities to make active efforts to induce young physicians or lawyers to locate in their midst. In other words, there is already a sufficiency, if not a general surplus in these two lines, and a very evident deficiency in our own.

PROGRESS.

I suggest a few thoughts to illustrate progress in certain lines.

The bacteriology of pleuro-pneumonia has been partially cleared up by the discovery of organisms so minute that our most perfect microscopes are unable to define them for the observer. Competent bacteriologists have pronounced the work in this case as free from flaws and there is apparently no reason why we should not accept it. If the specific germ of one disease is too minute for microscopic study, there may be many others. Recent work seems to place hog cholera over in this list. There are several diseases of animals, the specific cause of which has persistently eluded the bacteriologists and it is possible that in this we have an explanation. New methods of bacteriological work may now solve these hitherto impossible problems.

The history of Texas fever presents another triumph. It has been but a few years since the origin and nature of this disease was a mystery. It is difficult to give a definite idea of the seriousness of this disease. A large portion of all cattle in the United States, south of a certain line, are either affected by it or have been rendered immune by infection while young, but remain sources of danger for northern cattle. Southern cattle could not be shipped north for pasturage or market except during cold months. Northern cattle could not be shipped south for the purpose of improving southern stock without almost complete loss. Great business interests were constantly disturbed and the loss to both southern and northern states was

serious. We now have the etiology of this disease before us, as an open book. Southern cattle free from living ticks may now be shipped north without danger. Government veterinarians have been experimenting for some time with dips for destroying the ticks so as to remove the last obstacle to the movement of southern cattle northward at all seasons of the year. Not only that, but it is now quite apparent that young cattle may be immunized and be safely shipped into the southern states. This means the possibility of improving the southern cattle, and you are doubtless aware of the immense cattle interests of the south, particularly of Texas and southwestern Louisiana,—all this to the credit of our profession.

The problem of tuberculosis in the human family and among domestic animals is perhaps the largest, and it may prove the most difficult problem which medical men have ever been compelled to face. Dubard's discovery of tuberculosis in fish was such a revelation that it is unsafe to even speculate concerning the limitations of this disease. Here we have a bacillus, varieties of which can exist in different animal bodies through a range of temperature of from 50 degrees F. in carp to 110 degrees F. in birds. Are these varieties of the bacillus of tuberculosis which are capable of altering from one to the other? Competent research work seems to indicate that this may be the case. If this bacillus can gradually adapt itself so as to thrive in a variety of animal bodies, whose normal temperature vary from 50 degrees F. to 110 or over, then the possibilities as to distribution and saprophytic existence of this microorganism are almost bewildering.

Sanitarians in the field of veterinary medicine have taken hold of the problem, large as it is, and considerable has already been accomplished. But a few years have passed since we had the first positive information as to the specific nature of the disease. We now have a diagnostic test for the presence of this disease which is as nearly infallible as any method of diagnosis in the whole realm of medicine. It gives us positive evidence as to the presence of the disease, even when the lesions are very

recent or slight in extent ; and, so far as known, the errors that may be charged to tuberculin are nearly all in cases that can be diagnosed on clinical evidence without the aid of tuberculin. Widespread interest in bovine tuberculosis has been aroused. Cattle breeders and dairymen are becoming informed as to the nature and extent of the disease. The views of breeders, especially, have changed very much during the past few years. When tuberculin first informed us that a serious percentage of highly bred cattle was tuberculous it naturally aroused the opposition of breeders and owners. But as it became more and more evident that their cattle were actually diseased and that tuberculin was an accurate test as to the presence or absence of the disease, the more intelligent breeders naturally came over and it is now safe to say that there are comparatively few cattle breeders in the United States or Canada who do not believe that bovine tuberculosis is seriously prevalent and that tuberculin is an accurate diagnostic. It is becoming rather common for breeders to purchase stock subject to test or with certificate of test. It is no longer necessary to found a herd of pure bred stock with tuberculous animals, and it is possible with the aid of tuberculin to free a herd from this disease.

In view of work that has been done in Denmark and Germany and by experimenters in this country, it is very evident that it is not only practical but possible to breed tuberculosis out of a herd. This is based upon the demonstrated fact that a very large percentage of healthy calves can be reared from tuberculous dams, providing the calves are removed from the mothers soon after birth and reared upon the milk of healthy cows or upon the sterilized milk of the dams. It is now quite generally recognized that dairymen should not be permitted to sell milk which comes from untested cows, for any city food supply, and a number of cities are making the tuberculin test a condition for issuance of license. Minneapolis was the pioneer in this and deserves great credit. St. Paul has an ordinance similar to the one in force in Minneapolis, and the work for that city will soon be well under way ; so has Duluth and other smaller places.

Surgery.—There are several operations commonly done by surgeons in human practice that we make no attempt to perform. It is scarcely possible in general veterinary practice to furnish ideal conditions during operations, and we cannot control our patients to the same extent after the operation. But in spite of these difficulties, veterinarians are now able to do really good surgery.

Operations are usually performed as a matter of business, as far as the owner is concerned. Sentiment does not play so important a part, but we have reason to be fairly well pleased with the veterinary operative surgery of to-day.

An accurate knowledge of anatomy enables us to use cocaine as an aid in the diagnosis of obscure lameness. If we anaesthetize the sensory nerve supply to a certain muscle, or to an entire articulation, and the horse which previously went lame, afterward goes sound for a time, we have fairly satisfactory proof as to the exact location of the injury.

To illustrate: A patient came to the University Veterinary Hospital with a badly swollen ankle and a history of injury while in training on the track several years ago. Examination easily demonstrated that trouble at the ankle was responsible for some of the lameness; but upon further examination I found an unusually bad case of thrush, and while considering the advisability of a certain operation for relief, the question arose as to what part, if any, of the lameness was due to thrush. I cocainized the posterior digital nerves just below the ankle and noticed that the horse continued to go lame as before. I then cocainized the plantar nerves just above the ankle and in from 12 to 15 minutes the horse was apparently free from lameness. I had then located the trouble causing lameness.

Veterinary surgeons are now doing quite a long list of neurectomies for the relief of lameness and the results are very satisfactory on accurately diagnosed and well selected cases. We are cutting the median nerve for the relief of lameness of the back tendons, ring bones and various foot troubles; cutting the plantar nerves, one or both, just above the ankle for ring bones,

navicular disease, corns, etc.; the digital nerves just below the ankle chiefly for navicular disease. We do neurectomies of the anterior and posterior tibial nerves, external saphenous and musculo-cutaneous, for the relief of spavin and other forms of lameness in the posterior limb. We divide the motor branch from the eleventh cranial nerve to the sterno-maxillaris muscle, and the bellies of the sterno omo-hyoid muscles to prevent a horse from cribbing and cure the habit. The cunean branch of the flexor metatarsus tendon is frequently divided for the relief of spavin lameness. We have a new operation, which is probably superior to the old arytenectomy for the relief of roaring. Laparotomies are fairly common; for instance, in cryptorchid castration, ovariectomies, removal of foreign bodies from the alimentary canal, and for volvuli.

Medicine.—Until recently parturient apoplexy, commonly known as milk fever, was one of those diseases which every veterinarian was anxious to avoid. A call to attend a case of parturient apoplexy was very much like a call to attend a funeral. We now have a treatment that is apparently specific.

We can now administer a cathartic and evacuate the alimentary canal of a horse in 25 to 30 minutes by the hypodermic or intratracheal use of eserine sulphate, either alone or in combination with atropia or strychnia.

I have discussed veterinary education, veterinary sanitation, a few operations from the domain of surgery, and a few points in disease and treatment work, to illustrate something of what the modern veterinarian is doing and the progress he has made.

It seems to me that the general trend of actual practice is toward greater certainty in diagnosis, and greater assurance of definite results in treatment. I will illustrate:

We have mallein as a practically certain diagnostic for glanders. We have tuberculin as a similar diagnostic for tuberculosis. The modern veterinarian may, by the skilful use of cocaine and an accurate knowledge of anatomy, make a much more positive diagnosis in certain cases of lameness than was previously possible; he may make an early and reasonably

positive microscope diagnosis of anthrax, by simple procedure.

In a study of prevention we see the same general trend of affairs. Texas fever may now be prevented by calf inoculation, and thus new blood be introduced for the purpose of improving southern cattle.

We have a very satisfactory preventive vaccine for symptomatic anthrax, and for true anthrax. We have a serum for tetanus that is at least very useful and apparently quite reliable as a preventive of this disease. There is one vaccine already before the public with reasonable assurance of successful operation for the immunizing of cattle against tuberculosis, a thing of vast importance. We may prevent the general infection of a stable with glanders by early testing of doubtful cases with mallein. It is possible and altogether practical to prevent milk fever and azoturia with reasonable certainty by intelligent management of diet and exercise. Heaves is easily preventable. The introduction of infectious abortion may be guarded against and even when this disease has gained foothold in a herd it may now be eradicated with a reasonable outlay of time and expense and with considerable certainty.

As illustrating this same thought in connection with treatment, we are able to treat milk fever with great certainty of results. The modern veterinarian's method of dealing with navicular disease is much more positive in operation and satisfactory in results than the old line treatment. We have the stomach tube, which is apparently coming into use for treatment of certain gastric troubles; and even for old-fashioned colic we have the Reek's treatment, which is at least definite, and which is based upon precise theories; its users follow out a definite line of treatment, and apparently secure a higher percentage of recoveries than was formerly attained.

I do not mean to suggest that we are rapidly approaching an age of specific lines of treatment, that is, a certain formula for a certain disease regardless of the individual peculiarities of the case and other considerations, but it does seem to me that we are coming quite rapidly out of the old haze of uncertain thera-

apeutics, and doubtful diagnosis, and helpless or blind prevention.

And finally we have this encouragement, that a large number of States have now placed upon their statute books veterinary practice acts which at the least recognize in a public and legal way the profession, and promise ultimate freedom from quackish competition, and even promise increased compensation. This is a matter of the greatest importance, even though the immediate benefits of these Acts for men now in the field are not very apparent. We need only to look ahead a term of 25 or 50 years to see that they are of the very greatest importance to our profession.

Are not all these conditions encouraging? Have we not good reason to face the future with great confidence?

CONTRIBUTION TO VETERINARY DENTISTRY.—The following item is from *The Scrap-Book*, April, 1906, page 353: "The greatest dental operation on record was performed upon an elephant in the City of Mexico. The aching tooth was twelve inches long and fourteen inches in diameter at the root. After Mr. Elephant had been securely fastened with chains, his mouth was pried open and a quantity of cocaine was applied to deaden the pain. When this was done a hole was bored through the tooth and an iron bar inserted. Then a rope was twisted around the bar and four horses attached."

THE MINNESOTA STATE LIVE STOCK SANITARY BOARD has succeeded in closing the large, open watering fountains in both St. Paul and Minneapolis and has substituted a more sanitary plan. They have also put into operation a regulation which provides for tuberculin testing of all cows that come into the South St. Paul Stock Yards from other states, and which are to go out of those yards for dairy or breeding purposes. Both St. Paul and Minneapolis have tuberculin test ordinances which have been in operation for several years. This gives Minneapolis and St. Paul dairymen an opportunity to replenish their herds with tested cows. This movement also adds another veterinarian to the working force, making five in constant service in addition to the veterinary members of the Board. This Board is making a good record, and Dr. Ward as Secretary and Executive Officer, deserves a goodly share of the credit.

EXPERIENCES WITH VON BEHRING'S PROTECTIVE INOCULATION AGAINST TUBERCULOSIS IN CATTLE.

BY DISTRICT-VETERINARIAN SCHRICKER, GROENENBACH, GERMANY.

Translated by JOHN V. LADDEY, D. V. S., from Wochenschrift für Tierheilkunde und Viehzucht, Vol. 50, No. 7.

It is now three years since von Behring's method of the protective inoculation of calves against tuberculosis has been transferred from the confines of bacteriological experiments into general practice and already favorable conclusions on achieved immunity have reached publicity. It may still take another six to eight years until a final and definite decision in regard to the attainment of a life-long immunity in vaccinated animals is arrived at, but for preliminary consideration and in the interest of a general introduction of this protective inoculation method the publication of the following observations might be of value. At the Eighth International Veterinary Medical Congress in Budapest, two essayists on this theme, Dr. Hutyra and Dr. Römer, expressed themselves to the effect, that the vaccination method, which is harmless for cattle and easily carried out in practice, enhances the resistance of such cattle against artificial tubercular infection to a very considerable degree, and that the question, whether and to what degree immunity attained in this way will be able to resist natural infection, could not be answered definitely for the present, but that, in the interest of a large statistical collection, it would be necessary to further the introduction of the protective inoculation method into general practice under the diversest natural conditions, *i. e.*, in severely, medium and lightly infected herds.

The immunity of protectively inoculated animals towards artificial infection may be considered as proven by several experiments, *i. e.*, those reported by Dr. Lorenz, in No. 48 of the *Berliner Tierärztliche Wochenschrift*, of 1903, also by experiments which Vallée and Moussu recently performed in Paris, where 13 calves, which had been vaccinated the year before, and 13 control animals were inoculated, part subcutaneously

and part intravenously, with virulent cultures of tubercle bacilli, and whereupon all control animals became severely infected with tuberculosis, three even died of this disease, while none of the protectively inoculated animals became infected with tuberculosis.

It is now still necessary to ascertain whether this immunity will also resist the daily influence of natural infection in tubercularly infected stables, and whether von Behring's assumption, that the immunity lasts for the animal's life-time, will be found corroborated in practice.

In this direction the Belgian Commission of State Veterinarians has expressed itself very favorably, perhaps in consideration of the short period of observation too optimistically; this Commission declares, after extensive observations and experiences, that "The Belgian Stock of Cattle will be protected after a few years from tuberculosis through the vaccination, and that thereafter an infection of man through cow-milk need be feared no longer."

Further, Ebeling - Woldegk reports in No. I. of the *Berliner Tierärztliche Wochenschrift*, of 1905, that up to that time he had vaccinated 1126 calves without any detrimental consequences; of these he had so far dissected 37 head, of which 36 head were found to be entirely free from tuberculosis; one animal, which had been vaccinated at the age of 7 months, and, as a febrile reaction reaching 105.8° F. allows us to believe, was probably already tubercularly infected at the time of vaccination, showed tuberculosis of the bronchial glands.

Since two years I have undertaken the protective inoculation of all the young stock of seven herds, of which, it must be mentioned, six were highly tubercularly infected, while one was almost free from tuberculosis; up to the present, 76 animals have been vaccinated without any resulting harm. (In regard to the technique, I refer to an article in No. 18 of this publication, of 1904.) In one establishment a general tuberculinization of the herd, consisting of 58 animals (exclusive of calves up to four months of age), preceded the protective inocu-

lation ; 39 head of this herd reacted to this test. In this herd also the non-reacting young stock up to two years of age were vaccinated, while in the other establishments only calves up to four months of age were subjected to the vaccination.

The reaction upon the first and second inoculations was mostly a mild one, and, excepting a cough, only a few of the animals, especially those of a more or less advanced age, showed a mild, febrile elevation of temperature, without any symptoms of a systemic disturbance. Suckling calves as a rule show no reaction whatever. Only two animals presented disturbances of a somewhat serious nature ; to these I will again refer later. The vaccinated animals are all in a thriving condition, and present a smooth and glossy coat.

Of the vaccinated animals, three have so far been dissected, viz. : two yearlings on account of tympanites, and a three-year-old primiparous cow, on account of metritis ; this last animal was vaccinated at the age of two years, after it had responded negatively to a tuberculin test. These three animals originated from two tubercularly infected establishments. While the two first-mentioned animals, which had been vaccinated as suckling calves, were found to be entirely free from tuberculosis, the cow was found to have tubercular calcification of the bronchial glands, as well as an isolated cherry-pit sized tubercular nodule in the lung ; the other organs and lymphatic glands were free from tuberculosis. This may be an instance where tuberculin failed, and where the animal was already tubercularly infected at the time of the vaccination ; however, it may also be the case, that the protective inoculation is only successful when administered to young animals, and that for this reason von Behring has recently indicated four months as the extreme age limit, while formerly it was recommended that in exceptional cases also animals at the age of four months to two years could be submitted to the vaccination process ; however, only then, when they were entirely free from any signs of tuberculosis, and an injection of tuberculin would cause no reaction whatever.

For the purpose of ascertaining whether protectively inocu-

lated animals could withstand strong natural infection, I submitted, in the case of the above-mentioned establishment, where 67 per cent. of the entire herd had reacted to tuberculin, all those animals, a total of eight, which I had vaccinated a year before, at the age of from 4 weeks to 3 months, to a tuberculin test. Of these eight animals, none had reacted to the vaccination. The method in which the young stock of this farm is raised, consists in allowing the calves to suckle their dams for a month, and then feeding them raw milk for another six months; in winter, spring and fall, the young stock is kept in the stable with the older cattle of the herd, in summer on a separate pasture.

As a dose 0.5 c.c. tuberculin was considered amply sufficient for these yearlings, which reacted in the following manner:

No.	Time of Injection	Following Day				
		7 P. M.	5 A. M.	7 A. M.	9 A. M.	12 M.
1	102.2° F.	102.6° F.	102.2° F.	103.1° F.	100.8° F.	
2	101.7 "	103.5 "	103.1 "	103.3 "	101.8 "	
3	101.5 "	104.0 "	103.6 "	103.6 "	101.5 "	
4	101.7 "	103.8 "	102.4 "	102.2 "	103.3 "	
5	100.8 "	102.6 "	102.0 "	101.8 "	101.7 "	
6	101.3 "	102.7 "	102.0 "	102.7 "	101.1 "	
7	101.8 "	104.0 "	102.4 "	102.9 "	101.5 "	
8	101.5 "	104.5 "	104.0 "	103.3 "	102.6 "	

(As none of the animals showed any fever, and as the temperature curve was already declining in all the animals, the taking of temperatures was not continued after 12 noon.)

The dam of Nos. 1-5 had reacted upon tuberculin with temperature elevations of: 1.9, 2.2, 2.1, 2.6, and 1.9° C., respectively; the dam of No. 7 had not reacted, and Nos. 7 and 8 had been bought as calves to add to the herd.

In connection with the tuberculinization of protectively inoculated animals, it must be mentioned that according to Dr. Roemer, Director of the Experiment Section of the Hygienic Institute at Marburg, and Collaborator of von Behring, "experience teaches that a hypersensitiveness to tuberculin makes its appearance following the protective inoculation; a tuberculin test, therefore, gives a positive reaction in cases where

no tubercular foci can be demonstrated in the organism."

As the above table shows, this hypersensitiveness to tuberculin might have found expression in the fact, that all the animals showed short and slight elevations of temperature; however, a typical reaction did not take place in any one of them. When the circumstance is now considered that, according to our experience, animals in the first stage of tuberculosis, which stage alone can enter into consideration in young animals, without clinical signs, react the strongest, and when it is further considered that, 0.5 c.c. tuberculin is a strong dose for young animals, then one could arrive at the conclusion, that none of the vaccinated animals is affected with tuberculosis. Nevertheless, so as not to be partial to protective inoculation, I will regard the reaction of animals No. 3 and 8 as positive, but even then this result could be called a favorable one, when compared with the results shown by the sixteen non-vaccinated animals which had been tuberculinized the previous year at the age of from $\frac{3}{4}$ - $1\frac{1}{2}$ years; ten of this group have reacted positively, and six negatively. The relation of the results by comparison is as follows:

	REACTION.	
	Positive.	Negative.
Non-vaccinated animals	62 per cent.	38 per cent.
Vaccinated animals	25 "	75 "

Guided by a desire to draw for these investigations upon subjects predisposed by heredity and exposed to severe natural infection, I therefore subjected another $1\frac{1}{4}$ year old animal, which had been kept in a tubercularly infected stable, and protectively inoculated in February and May of the previous year. The sire of this yearling was destroyed one month before the birth of the latter, on account of pulmonary tuberculosis, complicated by chronic tympanites; the yearling's dam, a secundiparous Swiss cow, was destroyed about two months after the birth of the former, also on account of pulmonary tuberculosis; the experiment animal was, therefore, at all events by heredity very strongly predisposed to tuberculosis. The animal had reacted upon the first inoculation with a febrile elevation of tempera-

ture (up to 40.5° C.) lasting 2 days, and a somewhat diminished appetite, which lasted several days; upon the second inoculation it reacted only with a slight elevation of temperature and without any systemic disturbances. A few months after the second inoculation this animal, which had always been poor in flesh and rough-coated, suddenly thrived. The tuberculin test gave the following result:

No.	Time of Infection		Following Day			
	7 P. M.	5 A. M.	7 A. M.	9 A. M.	11 A. M.	1 P. M.
9	102.9°F.	103.6°F.	104.0°F.	101.3°F.	100.4°F.	100.4°F.

Thus we have also here the same phenomenon as in the aforementioned animals—febrile elevations of temperature of short duration, but no typical reaction; this animal should be looked upon as not affected with tuberculosis.

I further subjected to the tuberculin test a 1 1/4-year-old bull from another tubercularly infected herd. This experiment animal, which had been protectively inoculated in January and April of the previous year, was also hereditarily strongly predisposed. The animal's sire (the same as in experiment animal No. 9) was destroyed about one month before the birth of the yearling, on account of tuberculosis, and its dam, a primiparous cow, about four months after the birth of the yearling, on account of tuberculosis of the lungs and mesenteric lymphatic glands.

This young bull had already reacted very strongly upon the first inoculation, but still stronger upon the second inoculation, so that on the second day after the inoculation there still existed a temperature of 107.2°F ., with chills, anorexia and general systemic disturbances, which caused the somewhat anxious owner to send for me. From the third day after the inoculation the general condition became improved, the appetite slowly returned, and the fever moderated (103.3° F .)

Tuberculinization of No. 10 gave the following result:

Time of Injection	Following Day						
6 30 P. M.	5 A. M.	7 A. M.	9 A. M.	11 A. M.	1 P. M.	3 P. M.	5 P. M.
102.6°F.	105.4°F.	106.0°F.	106.3°F.	106.9°F.	106.0°F.	105.6°F.	104.7°F.

This animal, therefore, was the only one of the ten experiment animals which had shown a typical reaction. In comparison with the reaction of all the other vaccinated animals, this excessively febrile reaction (combined with general systemic disturbances and lessened appetite following both the first and second inoculations) which No. 10 had presented, as well as the strongly hereditary predisposition, would indeed justify us in concluding that the animal in question was already at the time of vaccination affected with tubercular lesions.

According to von Behring, protective inoculation is only successful when the animal to be inoculated is not already infected, or, when the animal has received infection through tuberculous milk, but where no lesions have as yet become established; therefore, if the disease is still in its incubation period. This latter condition might have been the case in animal No. 9. If, however, tuberculous lesions already exist, when, therefore, the disease must be considered as already manifested, then it is impossible to check the progress of this disease by protective inoculation. This might well have been the case in experiment animal No. 10.

In combining the post-mortem findings and the results of tuberculin tests, the following conclusions must be arrived at:

It is possible, through the protective inoculation of calves of less than four months of age, to enhance to a considerable degree the resistance of such vaccinated animals against severe natural infection, in so far as said animals are not already affected with tubercular lesions.

As far as the indications for protective inoculation are concerned, I am of the opinion that it is to be made use of in all severely infected establishments where an energetic method of eradicating tuberculosis has become an economic necessity. The introduction of this protective inoculation procedure into moderately and mildly infected herds might be welcomed in the interest of a collection of more extensive statistics; the necessity for this, however, does not exist in view of the fact that the correctness of the method has still not yet been definitely

decided. It might be well, therefore, to confine this immunization method to the offspring of manifestly tuberculous dams and sires.

Even if this immunity should only last 2-3 years, the advantage derived therefrom would still be great enough in that the second principal factor in the eradication of tuberculosis from infected herds, that of raising offspring free from tuberculosis, would be better served than by the methods heretofore employed. It would obviate the necessity of separating the young stock from the older cattle, which method is not easily carried out and in many cases of a doubtful effect; it would further also be rendered unnecessary to raise calves on sterilized milk, which as experience teaches us often unfavorably influences the development of the calf. Eradication of tuberculosis from infected herds would therefore be materially simpler than heretofore, and could be brought to a successful termination by the following regulations:

(1) Protective inoculation of the young stock possibly already at the age of 3-4 weeks, as well as of all newly added animals under four months of age.

(2) Tuberculinization of newly added animals over four months of age.

(3) The quick removal of dangerously tubercular animals.

Another much discussed point entering into the eradication of tuberculosis—the question whether manifestly tubercular animals should be bred from, has been placed in a different light through the researches of von Behring. Von Behring antagonizes the teachings of hereditary disposition to tuberculosis; he maintains that tubercular infection can be traced mainly to infected milk received in the first few weeks of life; the decisive influence of the transmission of tuberculosis is therefore to be attributed, not directly to heredity, but entirely to the dam in cases where the calf receives the infective milk in a non-sterilized condition. As essayist, he expressed himself in a similar sense on this subject at the Eighth International Veterinary Medical Congress at Budapest; he contended that tubercu-

losis can be transmitted by the parents directly to the offspring to a very slight extent only in cases of extensive generalization of the disease, and that hereditary disposition, in regard to the origin of tuberculosis in the domesticated animals was a matter of secondary consideration.

Of this new theory, that tuberculosis is not hereditary, many practitioners and experienced breeders will surely not be so easily convinced; the costly experiences made with tuberculosis by continued in-breeding are direct proofs against this theory. In accordance with this acceptance, the above-mentioned young bull (No. 10), which will soon attain the age of puberty, could without hesitation be admitted to service in the already tubercularly infected herd.

I should certainly hesitate to give the owner that advice, in spite of the bull's good conformation and noble pedigree (his sire had been bought in Switzerland for 1500 francs, and his dam insured for M. 700). Until such a time when the verdict has been pronounced, that protective inoculation definitely immunizes all animals, including those hereditarily predisposed, against tuberculosis, it will always be advisable to continue to act upon the lessons learned through experience, by introducing new blood to such tubercular infected herds; this can be accomplished to a large extent by the addition of young serviceable bulls which have responded negatively to tuberculin.

DR. CHARLES H. LEAVITT (C. V. C., '06) has sailed on the transport *Dix*, from Seattle, Wash., with army horses for Manila, P. I.

THE FISS, DOERR & CARROLL HORSE COMPANY sold 36,000 horses last year for an average price of \$166 a piece, including second-hand auction animals.

THE MISSISSIPPI VALLEY VETERINARY MEDICAL ASSOCIATION, at its meeting in Monmouth, Illinois, Feb. 22, passed the following resolution: "*Resolved*, That so long as the office of State Veterinarian is held by an empiric, it shall be considered an unprofessional act for any member of this Association or for any graduate veterinarian to serve as Assistant State Veterinarian."

NITROUS OXIDE ANÆSTHESIA IN ANIMALS.

BY LOUIS P. COOK, D. V. S., CINCINNATI, OHIO.

Presented to the Twenty-third Annual Meeting of the Ohio State Veterinary Medical Association, January 16, 1906.

The aim of this paper is to lay before this Association the details of a series of experiments conducted for the purpose of determining the value of nitrous oxide as an anæsthetic for veterinary use. This agent has been used to a very limited extent by veterinarians, and I have been unable to obtain from literature accurate details of its effect on animals. Chloroform and ether, the anæsthetics in common use, have many disadvantages, the most notable being the stage of excitation produced by them before anæsthesia, often long delayed, develops. This stage of excitement makes the use of such agents more or less dangerous to the patient, and the length of time, usually from ten to twenty minutes, required to anæsthetize an animal, often proves embarrassing to the operator. The length of the period of excitement may be shortened and the advent of anæsthesia hastened by the rapid administration of chloroform, but I believe it to be the opinion of experienced veterinarians that such practice is exceedingly risky. True, anæsthesia has often been produced in the horse with chloroform in three or four minutes, but disastrous results, too, have not been infrequent. On account of the slow and uncertain action of chloroform and ether the veterinarian generally operates without the use of anæsthetics, even though anæsthesia would make the operation safer for the patient and easier for the operator, as well as more humane. The more general use of anæsthetics by veterinarians would make veterinary surgery appear more scientific and less like butchery. It, therefore, seems to me that veterinarians, in the interest of their profession, ought to seek for some practicable anæsthetic. The physician finds the same fault with chloroform and ether.

Lately nitrous oxide or "laughing gas," originally used almost exclusively by dentists, has come into very general use

with physicians, who use it to produce primary anæsthesia, which it does in about thirty seconds, and which can be kept up by the use of very little ether. Appliances have been invented for the use of physicians for its administration alone or in combination with ether. Having witnessed its administration to a number of individuals and the prompt and comparatively safe manner in which anæsthesia was produced by it, I decided to try it on horses and dogs. The subjects held for dissecting purposes at the Cincinnati Veterinary College furnished ample material. A hood somewhat like the ordinary nose feeding bag, but smaller, was constructed of leather, rubber and brass, which when adjusted to the animal's head fits neatly. The mechanism of this hood permits the admission of fresh air, chloroform, or gas, alone or in any combination, or in its being made absolutely air-tight. The method of producing anæsthesia is like this: The hood is adjusted, either before or after casting the animal or placing it upon the operating table. The fresh air inlet is allowed to remain open, permitting the animal to breathe freely until the operator is ready to administer the anæsthetic. When all is ready the fresh air inlet is closed, excluding fresh air entirely; simultaneously the nitrous oxide is turned on, which on passing through the chloroform chamber carries with it the chloroform vapor, and the hood at once becomes filled with the combination. The animal takes a few deep inspirations, when usually, in from thirty to sixty seconds, and with very little struggling, complete anæsthesia, with muscular relaxation, etc., develops. The gas is then shut off and the chloroform and fresh air inlets at once thrown open, allowing the inhalation of both chloroform and fresh air, with which a proper state of anæsthesia may be maintained indefinitely and with the use of very little chloroform. I have administered nitrous oxide alone for fully three minutes without producing anæsthesia, though the animal was nearly asphyxiated.

When mixed with a very little chloroform, however, nitrous oxide readily anaesthetizes, consciousness returning in from one to three minutes after its administration is

discontinued, but analgesia lasts for some minutes longer.

The advantage of this method is that anæsthesia can be safely produced in a minute or two, and without any excitement or struggling. Nitrous oxide is practically harmless. It has little effect on the action of the heart, and the small amount of chloroform required to be used with it is insufficient to perceptibly weaken the organ.

The gas is sold in tanks of different sizes, with stopcock, tubing, etc., attached. Tanks costing two dollars contain sufficient to anæsthetize a dozen or more horses. I have administered the gas to some thirty horses and about half this number of dogs, and experience has taught me that it must be given to animals rapidly and entirely free from air and in combination with a small amount of chloroform.

I am deeply interested in nitrous oxide anæsthesia in animals, and I should be pleased to hear from any member of this Association who has had any experience on the subject.

DR. L. VAN ES, of the North Dakota Agricultural College and Experiment Station, recently took an active part in a meeting of the State Medical Association—a good example for all veterinarians who can possibly follow it.

RABIES has recently threatened two well-known members of the veterinary profession. Drs. A. H. Baker, of Chicago, and Geo. E. Corwin, of Connecticut, each of whom was bitten by a dog he was attending. Both at once took the Pasteur treatment and escaped serious consequences. The former made extensive duplicate bacteriological investigations, and the Negri bodies were readily and plainly visible in sections of the nervous system of the dog which inflicted the wound upon his hand.

DR. L. A. MERILLAT, of Chicago, who conducts "Surgical Items" for the REVIEW, writes from the Yellowstone National Park, Wyoming, under date of June 7: "If the REVIEW should be left without a 'Surgical Item' for July this card will explain the reason. I am here doing a number of surgical operations for the Yellowstone Park Transportation Co. It is very cold here, with snow every day. Tourists have just begun to arrive. The grandeur here cannot be described."

Index

THE CLINICAL EXAMINATION OF THE BLOOD IN VETERINARY PRACTICE.

BY SAMUEL H. BURNETT, NEW YORK STATE VETERINARY COLLEGE,
ITHACA, N. Y.

From about the middle of the nineteenth century active investigations have been in progress on the condition of the blood in man and to a less extent in the domesticated animals. At first these were confined largely to observations on the number, size and shape of the red corpuscles, then came studies of the varieties of the white cells and the other elements found in the blood. About fifteen years ago enough had been learned concerning the condition of the blood in healthy and in diseased persons, and the instruments had been perfected to such a degree that an examination of the blood could be a valuable aid to the practitioner. Since that time the examination of the blood has taken its place among the other physical means of arriving at a diagnosis, and is now used by thousands of physicians and surgeons. In the better hospitals blood examinations are about as much a matter of everyday routine as the examination of the urine.

"The examination of the blood," DaCosta¹ states, "is capable of throwing light upon the diagnosis in so wide a range of conditions that it is difficult to single out any disease in which it may not be of some utility, either as positive or negative evidence." The kind of information afforded by the clinical examination of the blood has been divided by Cabot² into three classes, namely: it "gives us (a) a ready-made diagnosis in a few diseases; (b) side lights on a good many obscure conditions; and (c) the frequently great assistance of a negative report." Examples of the first class are found in malaria, leukemia, surra, Texas fever and filariasis. In the second class are such affections as secondary anemia, chlorosis, sepsis, intestinal helminthiasis, haem-

¹ DaCosta. Clinical hematology, second edition, 1905

² Cabot. Clinical examination of the blood, fifth edition, 1904.

orrhagic diseases, suppurative processes. Finding that the blood is normal is very often of great assistance, as it enables one to differentiate from the diseases that produce changes in the blood. Hodgkin's disease is diagnosed by a blood examination, yet the blood is normal in the early stages, this serving to distinguish this affection from leukemia, which produces marked changes in the blood but has otherwise similar symptoms. In typhoid fever the blood is nearly normal, this often being of great help in distinguishing it from affections showing somewhat similar symptoms but producing an increase in the number of leucocytes.

Besides its value in diagnosis, the blood frequently gives most important indications as to prognosis and treatment, and is of value in examinations for soundness. For example, in pneumonia there is ordinarily an increase in the number of leucocytes. If instead of there being an increase the number is below the normal it is a very bad sign. During the course of this disease the reappearance of the eosinophiles is a favorable sign, indicating that the crisis is passed. In an anemia in which the hemoglobin is much lessened while the number of red corpuscles remains nearly normal, that is, the coloring matter in each corpuscle is lessened, the indications for a prompt improvement under administration of iron are good; while but little improvement is to be expected where the amount of hemoglobin in each corpuscle is normal, and practically no improvement when the hemoglobin index is above normal, iron being practically contraindicated in the more severe cases where the blood shows very large red corpuscles, each having an increased amount of hemoglobin. In examining a horse for soundness, as suggested by Moore, the blood may reveal the presence of morbid processes not evident by other physical symptoms. For example, a deeply seated suppurative process may be overlooked on an ordinary examination, yet the blood show a marked increase in the polynuclear leucocytes. In subjects infested with tape worms or intestinal round worms there is ordinarily an increase in the number of eosinophiles in the blood. Without multiplying examples, it may be seen that the blood offers excel-

lent facilities for judging as to whether an animal is in a state of health or not.

A great mass of data has been accumulated concerning the changes found in the blood in the several diseases to which human flesh is heir. The books and pamphlets containing these data would make a good sized library. As regards the blood of the domesticated animals but comparatively few clinical observations have been made. Careful studies of the blood have been made in Texas fever, in infectious leukemia in chickens, in trichiniasis in swine and in surra. Clinical examinations from the clinic here of less than a hundred cases of horses, dogs and cows suffering from various disorders are recorded. A considerable amount of work has also been done on the blood of animals in the course of experimental investigations. All told, the available data on the blood of the domesticated animals is meager; yet the importance of these is far greater than mere numbers indicate because, as Moore, Haring and Cady¹ have pointed out, "they show that the changes that occur in the blood of the horse" and, we may add, in the other animals studied "follow very closely those that take place in the human subject under like pathological conditions. This fact being fairly well established makes it possible for us to draw somewhat fully from the demonstrated facts in human hematology to aid us in the interpretations of the findings in horses" and in other animal "blood."

Though only a beginning has been made, yet it is not as though we were building from the very foundation. As soon as the normal condition of the blood in the several kinds of animals is determined, we are ready to make use of clinical examinations. A series of investigations on the blood of the domesticated animals have been in progress here for about four years. As a result of this work, together with that done elsewhere, we have available at the present time a working knowl-

¹ Moore, V. A., Haring, C. M., and Cady, B. J. The clinical examination of the blood of the horse and its value to the veterinarian. *Proceed. Am. Vet. Med. Assn.*, 1904, p. 284.

edge of the blood of the horse, cow, sheep, dog, cat, rabbit and guinea-pig.

In an ordinary clinical examination of the blood the things of value are:—

- the number of red corpuscles,
- the number of leucocytes,
- the amount of hemoglobin or coloring matter,
- the percentage of the several varieties of leucocytes,
- the pathological changes in the red corpuscles and in the leucocytes.

The third of these, the amount of hemoglobin, may be obtained by an inexpensive instrument. The others require a microscope; but aside from the microscope the apparatus is not expensive. It requires some training to learn to make an examination quickly and accurately, but it does not take so long as it does to learn the heart and lung sounds. To get the amount of hemoglobin is no more trouble than to take the temperature, and requires less time. The amount of coloring matter in the blood tells one whether anemia is present and if present to what degree. Making a guess as to the presence of anemia by the appearance of the mucosæ and skin or finding the amount of hemoglobin present in the blood, is very like the difference between taking the temperature with the finger or using a clinical thermometer. A good illustration of the uncertainty of making a diagnosis of anemia from appearances alone, occurred very recently when two persons came to the laboratory to have their blood examined. One, Miss A, was pronounced by her physician to be anemic, while the other, Miss B, was pronounced to be typically normal. The blood examination, much to the surprise of the attending physician, showed that Miss A had a high normal amount of hemoglobin, while Miss B was anemic. This example, which is only one among a considerable number that might be given from my experience, is all the more instructive to us when we consider that changes in the appearance of the skin and mucosæ are much more easily seen in man than in animals.

Every one has cases in his practice where the symptoms are obscure or point about equally to two or more conditions requiring widely different methods of treatment. In such cases one needs all the assistance one can get. Often in just such cases as these the blood points the way to a correct diagnosis. It enables us to see a little farther, a little deeper into the processes that are going on in the tissues. Take, for example, cases of verminous embolism in the horse, due to *Sclerostoma equinum*. Haring's study of four cases showed that in each horse there was an increased number of eosinophiles in the blood. The value of his findings is self-evident in differentiating between spasmodic colics caused by this parasite and those due to intestinal obstruction or causes other than parasites. The value of a blood examination is not so much that it enables us to make a diagnosis by its use alone, though there are several conditions in which the blood alone is sufficient. In the great majority of cases it is to be considered with all the other symptoms available, as simply one kind of objective symptom. For this reason I think that it will not tend to supplant careful observation and study of the other symptoms; but that, on the contrary, by causing us to observe more critically and study our cases more carefully, it will help us to see more clearly what changes are going on in the tissues and organs.

DR. G. E. CORWIN, JR., of Lakeville, Conn., was recently bitten by a rabid dog which he was examining, and three persons belonging to the family of the animal's owner were also victims. All took the Pasteur treatment in New York. The Doctor is known to our readers through his occasional contributions. We trust that his preventive treatment has been entirely successful.

DRS. C. E. AND J. S. HOLLINGSWORTH, of the firm of Hollingsworth Bros., La Salle, Ill., have recently moved into their new Veterinary Hospital. It is built of hollow concrete blocks, having a floor capacity of 36 feet x 115 feet, two stories high, is covered with a slate roof, is electric lighted, furnace heated, with commodious well ventilated stalls and boxes, and is equipped with a Kyle operating table and an ambulance service.

ACONITE POISONING.

BY DR. B. F. KAUPP, KANSAS CITY VETERINARY COLLEGE, KANSAS CITY, MO.

Presented to the Meeting of the Missouri Valley Veterinary Association, Feb., 1906.

Among those who medicate horses for their various ailments are some who have not had the school training which fits one to competently prescribe. Among the drugs used, and often used in poisonous doses, is aconite. That one could, with certainty, recognize the symptoms of a horse given an overdose, he must know the various conditions of impaired functions it produces.

The following is a report of one experiment. The subject was a gray gelding, aged, but in good health.

The following table shows the effects of a poisonous dosage upon this horse :

Time.	REMARKS.	Temp.	Resp.	Pulse.
12-27				
9.10 A. M.	Heart regular and strong. Given 2 drams fluid ext. aconite root, P. D.	99.2	17	35
9.30 A. M.	Movements of swallowing, champing of the jaws. Head protruded. Defecation. Restless.	99.2	20	40
9.40 A. M.	Defecation. Heart weak and irregular. Continuous movement. Swallowed 24 times per minute.			38
9.50 A. M.	Defecation. Rectal muscles relaxed. Slight perspiration. Slight bloating.			
9.55 A. M.	Defecation.	99.9		40
9.56 A. M.	Defecation. Passage of flatus. Labored respiration. Grunt at each exhalation.		10	40
9.57 A. M.	Defecation. Continuous movements of deglutition, 34 times a minute.			
10.10 A. M.	Two drams more of the aconite were administered per orum in 1 oz. of water.			
10.11 A. M.	Defecation. Not so restless Passage of flatus.			
10.13 A. M.	Defecation. Excrements more soft. Again restless.			
10.15 A. M.	Grunting during exhalation.	99.9	13	
10.17 A. M.	Defecation.			

Time.	REMARKS.	Temp.	Resp.	Pulse.
10.20 A. M.	Cuticular surface more moist. Continuous movements of deglutition, 42 times per minute. Defecation.			
10.25 A. M.	Head protruded. Champing of jaws. Passage of flatus. Heart irregular but stronger.			
10.30 A. M.	Respiration more difficult and grunt during exhalation. Passage of flatus.			9
10.35 A. M.	Pulse irregular but now weaker. Defecation.			
10.37 A. M.	Passage of flatus. Movements of deglutition now 36 per minute. Perspiration more profuse. Colicky symptoms. Efforts to lie down, but was not permitted to do so.			
10.40 A. M.	Defecation and passage of flatus. Colicky symptoms more acute.	99.9		
10.45 A. M.	Lying down, then up.		18	
10.50 A. M.	Salivation. Still champing jaws. Movements of deglutition and other symptoms same.			
10.57 A. M.	Not so restless. Trembling. Heart very weak. Bloated. Tapped cæcum. Escape of gas followed.			
11.00 A. M.	Colicky pains continue. Salivation. Head protruded. Difficult respiration. Defecation. Dilated nostrils.			
12.30 P. M.	Respiration not so labored. Heart weak and very fast. Colicky. Given 1 gr. strychnia sulph. and 1 dram fluid extract convallaria per orum in 1 ounce of water.	103.5		
1.00 P. M.	Increased salivation. Labored respiration, perspiring freely. Two oz. aromatic spts. ammo. administered per orum.			
4.00 P. M.	Given 1 dram f. e. convallaria. Respiration not labored. No salivation or champing of jaws. Movements of deglutition subsided.	102.5	26	72
5.00 P. M.	Violent efforts as if to vomit. For a few minutes breathing was labored. Colicky. The attack lasted five minutes.	102.5	26	72
11.30 P. M.	Bloated. Colicky. Difficult respirations. Died.			
12-28	An autopsy was held.			

After the carcass had been skinned, the abdominal cavity

was opened; food was found among the abdominal viscera. Upon further investigation it was found that the stomach was ruptured upon the greater curvature for a length of six inches. Hæmorrhages were found over the serous membranes of the stomach, lungs, heart and kidneys, and also in the substance of the right kidney. The liver was congested. The right auricle and ventricle were two-thirds full of black, clotted blood. An ante-mortem clot half the diameter of the pulmonary artery was found.

There was only a small quantity of dark non-coagulated blood in the left auricle and ventricle.

By text-books aconite is described as being a cardiac and respiratory depressant, also diaphoretic and diuretic. Locally it relieves pain, on account of its sedative action upon the sensory peripheral nerve endings. In poisonous doses it kills by respiratory arrest.

In the above single experiment that was conducted, the most prominent derangements were: Movements of swallowing, champing of jaws, salivation, irritant to stomach and bowels, leading to spasms; respiration, heart beat and blood pressure are lowered; pulse irregular; respirations slow and difficult; especially the expiratory effort.

DR. ADOLPH EICHHORN, B. A. I., editor of "German and Hungarian Review" for this publication, has been transferred from field duty in Kansas to laboratory work in Washington.

A QUAIANT RECIPE.—The following from an old book is given as "an excellent cure for the murrain in cattel": Take for every beast a quart of old wash and a good quantity of hens' dung, and lay the latter to steep eight or ten hours, and then strain the dung forth, and break to every beast two rotten eggs into the fore-named juice; and give to everyone two penny-worth of spikward, and blend all these together and give it the beast; but first let blood, both sick and sound, and separate the sick from the sound. Drench both horses and swine, for they are both apt to take the disease. Bury the dead deep in the ground, so that dogs cannot get at the carcase.—(*Farm and Home.*)

ACUTE INDIGESTION IN THE HORSE: ITS TREATMENT.

BY DR. D. O. KNISLEY, TOPEKA, KANSAS.

Read before the Semi-Annual Meeting of the Missouri Valley Veterinary Association,
Feb. 12, 13, 14, 1906.

My subject is "Acute Indigestion of the Horse," a trouble that is by no means unfamiliar to you all, and one that is sure to cause all of us, at times, to consider what to do first. Going into the details of etiology and pathology of the cases, I consider it is only time lost, as all of you have had your time of study along this line, so shall omit that and try to give you a short outline of the symptoms usually found in these cases when called in the early stages. I usually find this trouble in the heavy or work horse, rarely in the trotter or thoroughbred, and in one instance only in a mule. The work horse with us seems very prone to the disease.

The patient on one's arrival may or may not be down; it will usually be restless, getting up or down, frequently turning around, slight belching and regurgitation, respiration labored, and short, pulse at this time not very much affected; temperature practically normal. If convenient in these instances, I usually give linseed oil and turpentine or eucalyptolin in $\frac{1}{2}$ -oz. doses. If the case is relieved, I always feel thankful, for such cases rarely are, and as the distension of the stomach increases so do the symptoms of distress; breathing becomes very much harder, the patient becomes more restless, can neither lie down nor stand with any comfort, will turn around quickly in the stall, seemingly not knowing what to do, nostrils will be opened wide, and at this time are usually very red, pulse becomes wiry and irregular, belching from the stomach very noticeable, and very frequently a bloody-looking fluid mixed with particles of feed will return through the nose, which fluid has a very sour and disagreeable odor. About this time it is up to the practitioner to do something, as it seems that the different remedies that have been given during the progress of the disease have

apparently been thrown away, or, in other words, have not given the patient any relief. There should be something done to relieve such awful distress of the patient. Especially will the owner of the horse, if he is around, make suggestions to do this and that, when the practitioner knows well himself that as far as giving medicine is concerned, he has done all he can and that no good could come of the suggestions. To satisfy the owner, something must be done, and at this point I shall try to explain how I have consoled myself as well as the owner. My first attempt was made on a case similar to the foregoing description in my paper. The case came to the hospital apparently nearer dead than alive. I could see no good in trying to give medicine. At every inhalation the mouth was opened wide so as to admit more air, the mucous membranes were pale blue. I did not take time to find out the pulse or temperature, but proceeded at once to the office and got a piece of $\frac{1}{2}$ -inch rubber hose, 11 ft. long, and a mouth speculum, and started for my patient, calling an assistant to follow me. I first oiled the tube, then placed the speculum in the patient's mouth, having the assistant hold the horse to prevent swaying from side to side. I introduced the rubber tube, passing it through the mouth and œsophagus into the stomach without any trouble. The pressure in this case was so great that it forced the bloody-looking fluid through the hose. About $1\frac{1}{2}$ pailfuls came away with a good deal of ground corn and bran. After the discharge had stopped, I removed the tube, and left the horse in the open air. Twenty minutes later I gave three drachms of digitalis. About one hour later I placed the horse in a box-stall; three hours later the horse was eating hay slowly and appeared bright, but upon being moved showed soreness. I thought that due to the muscular exertion the animal had gone through. During the next two days I gave stimulants every four hours. On the fourth day the animal went home and was put to work.

The next case that came to the hospital was not in as bad condition as the first, still so bad that there was great distress, breathing very hard, belching gas continually. I decided to

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pass the tube as in the previous case, but success was not as easily won as I had anticipated. In this instance I had a great deal of trouble in getting the hose into the oesophagus. It repeatedly entered the trachea. I was persistent and finally succeeded, but for some reason things did not work as before. I got only a small amount of gas on its entrance, and, not being satisfied with this, I got a bucket of water and a funnel and proceeded to fill the hose so as to get suction. After the hose was full I let it drop on the ground and about half a pail of bloody-looking fluid ran out, when the hose appeared to clog up. I again filled it from the bucket, and again lowering it quite a lot of fluid and some feed returned. When it quit this time I removed the hose and took the horse to a box-stall and gave the following: Whiskey, $\frac{3}{4}$ ij; soda hyposulphate, $\frac{3}{4}$ ij; water, $\frac{3}{4}$ viij. I gave nothing further and the horse went home the next morning.

Now arose the question of how to do away with some of my troubles with such cases, and from that time on, as cases came and went, I would try to devise some plan to stop the clogging, as it interfered a great deal in some cases. Finally, I conceived the idea of a double tube—one in which I could use an influx of air or water and thereby either blow it open or use the water pressure to force it back. I spoke to a particular friend of mine, and he thought it a great scheme, and at once said he would finance the scheme if I would follow up the experimental part of it, which I agreed to do. On this plan we proceeded, first making a drawing on paper and sending this drawing to different rubber companies. After five or six companies refused to do anything for us, it looked discouraging; still we kept writing and finally found a firm who said they would venture to make one and stated price for same. By return mail the money was sent with the drawing, and in due time the tube returned, according to my idea, but at my first attempt to use it, I was greatly disappointed. I could not do one thing with it. It was entirely too limber. I could not get enough pressure to make it pass. Yet not being satisfied that it was useless.

We got a stilette for the same. The next trial was a great success. I had no trouble whatever in passing the tube, and the results were very satisfactory, so much so that I have made note of a few cases that I thought might be of interest to some of you, at least. Up to the present time I think I have passed this tube on at least 40 head and have not had a failure.

Oct. 26, a bay mare, belonging to Whitaker Bros., came to the barn at 4 P. M., very acute, would scarcely be induced to walk; breathing very labored; walked with a straddling gait. Put on the wash rack and passed the tube. At once about one pailful of bloody-looking fluid came away. The mare was greatly relieved. Gave alcohol and soda hypo. Half an hour later I gave 15 drops of aconite, followed by two or more doses one hour apart. The mare staid at the hospital four days and then went home to work.

Nov. 4, same mare came to barn at 6.30, breathing very hard and short; distension of the stomach so much that the colored man said, "Doctor, I guess she's a goner this time." I passed the tube and drew off about one pail of that bloody fluid and about two quarts of corn chop. Relief was given at once. Gave 20 drops of aconite. No further treatment. Mare went home next morning.

Nov. 4, Omnibus Company's gray horse, aged, came to barn at 5:30 P. M., breathing short and labored, in great distress, continually getting up and down. Was given one dose of oil of turpentine. Within twenty minutes horse was growing worse; broke out in sweat and could scarcely be kept on his feet. Was brought in and the tube passed, more than a pail of bloody fluid coming away. Relief was at once shown. Gave one dose of alcohol and soda hyposulphate. Horse did not lie down any more and went home next afternoon.

Nov. 17, bay filly, four years old, was brought to the hospital and could scarcely travel. Breathing was performed with great difficulty, bloody exudate and feed were running from both nostrils. I passed the tube at once and drew off about 4 or 5 quarts of bloody fluid. Then I gave $\frac{1}{2}$ ounce of eucalyptolin in

capsule. The filly was greatly relieved, but still kept on belching. One hour later I passed the tube again, draining off about $\frac{1}{2}$ pailful. Again I gave $\frac{1}{2}$ ounce of eucalyptolin. The filly was still in a good deal of distress, and in an hour I passed the tube again for the third time, draining off about $\frac{2}{3}$ of a pail of fluid. This was more than I had gotten at either of the other times. I then gave alcohol and soda hyposulphate. One hour later gave three drachms digitalis and an hour later gave three ounces whiskey with soda hyposulphate. Mare was given no further treatment, and left the hospital on the 19th, two days later.

Nov. 18, black horse, owned by W. J. Burchard, came to the barn at 10.30 A. M., in great distress, badly bloated. I tapped the colon at once, which gave relief. I then gave one-half ounce eucalyptolin in capsule. The colon refilled, and I tapped it again at 1 P. M.; horse quite restless. Gave two grains of morphine hypodermically; no relief apparent; breathing very hard and labored. At 2 P. M. I passed the tube and a pailful more of the bloody fluid came away. Then gave the alcohol and soda hyposulphate and tr. ginger. At 2.30 the horse was resting easy, and went home next morning at 10 o'clock.

Nov. 21, Mr. King's cream mare was very badly bloated at 5.30 P. M. I tapped the colon at once, then drew $\frac{2}{3}$ pail fluid from its stomach and gave alcohol, soda and ginger. Colon refilled and was again tapped at 9 P. M. Gave digitalis and hyp. soda. One hour later gave $\frac{1}{2}$ ounce eucalyptolin; left the mare at 2 A. M., resting easily. She went home in the morning.

Nov. 23, bay horse, owned by Lawrence Ellis, weighing about 1400 pounds, came to barn at 3 40 P. M.; had been sick two hours, belching slightly, very acute pains; could scarcely get him out of wagon. Gave $\frac{1}{2}$ ounce of eucalyptolin in capsule, waited three quarters of an hour and then passed the tube, a full pail of fluid coming away. Then gave the alcohol, soda hyposulphate and ginger, and put the horse in a box-stall. He laid down, and in about half an hour got up and went to eating hay. No further treatment. Horse went to work next morning as usual.

Dec. 1, was called at 4 P. M. to see a bay horse, weight 1700 pounds. I found the horse down, not much distressed, bloated slightly, breathing short, pulse not much affected. I gave $\frac{1}{2}$ ounce eucalyptolin in capsule. In half an hour the horse got worse, more bloated and restless. I advised taking him to the hospital. On arrival I gave 1 quart raw linseed oil and 2 ounces turpentine. At 8 P. M. the breathing was very short and labored, pulse growing wiry and animal getting restless. At 8.30 brought in and passed the tube, removing fully a pail and a half of fluid and at least a quart of corn chop, some pieces as large as half kernels. I then gave alcohol and soda hyposulphite. At 9.30 gave twenty drops of aconite. At 11.00 gave three drachms of digitalis. No further treatment. Horse went home at 8 A. M.

Dec. 24, called 4 $\frac{1}{2}$ miles in the country to see a pony belonging to J. A. Sieben. Had been sick about an hour; found her down and was unable to make her get up. She was in great distress; breathing hard and short; belching particles of feed and bloody fluid from both nostrils; mucous membrane pale blue. I passed the stomach tube at once, a pailful of fluid and feed came away. Then I gave $\frac{1}{2}$ ounce of eucalyptolin. In about twenty minutes she got up and was at once started for town. No further treatment was given. Mare went home next afternoon.

Jan. 1, 1906, mare had been driven 45 miles, came to R. Colvin's barn sick. I was called at once, and found her down; breathing hard and considerable belching. I gave $\frac{1}{2}$ ounce eucalyptolin; waited forty minutes. Mare grew worse in every way; breathing harder; she was very uneasy; could scarcely keep her on her feet. I passed the tube. But in this case there was hardly any fluid. I then gave another dose of $\frac{1}{2}$ ounce eucalyptolin. No further treatment was given. She called for her feed in the morning, but none was given. Was hooked up and driven 16 miles without any further trouble.

A TREATISE ON DOG DISTEMPER, WITH SPECIAL REFERENCE TO TREATMENT.

By J. C. BUTCHER, LIMA, OHIO.

Presented to the Twenty-third Annual Meeting of the Ohio State Veterinary Medical Association, January 16, 1906

I hesitate to take up a subject so little discussed at our meetings, on which literature is so deficient, so far from conditions met with in actual practice, and so at variance with successful treatment.

Dog distemper is so easily confused with congestive chills; in fact, when we have to deal with but one case (that is, when we have not the contagious form), we can be reasonably sure that a severe chill was its starting point. Another reason for this confusion is the uncertainty of symptoms. The normal pulse varies more in the various breeds of dogs than in any other animal. This is undoubtedly caused by the inherited weakness of the heart valves, brought on by over-exertion and rapid cooling. Secondly, we find all temperaments possible among dogs, and in no animal do we have the variance of care, surroundings and diet, which we find given dogs.

When called to treat a dog, we should remember that in no animal is the anamnesis so important—the care and kind of food the dog may have had; duration of the ailment, etc.

Now, what do we usually find when we suspect a case of dog distemper? On inquiry, we will nearly always find the dog to have been off on some excursion of a day or two, and as a result its condition resembles "a heavy cold" in the human subject. We may well term it a congestive chill, in which all secretions and excretions are completely checked.

Some veterinarians persist, however, in calling everything dog distemper.

A few cases to illustrate: Was called to a neighboring city to see a large Newfoundland dog, which had become greatly emaciated and covered with a scaly coat. An anamnesis similar to the following was obtained: This dog had not eaten any-

thing in two weeks; had become paralyzed and had defecated but once, and that a very small amount, in eleven days, and constantly grew worse under the veterinarian's treatment for distemper. My treatment was an enema of five quarts of warm water, massage of bowels for one-half hour; administered five minimis of croton oil, and after another half hour's massage, by ardent admirers of the dog other than myself. Then appeared before our eyes a splendid result of an effort at producing an endless chain, which was as gratifying to the dog as it was nauseating to his admirers. The dog recovered in ten days.

Another, a fox terrier, which had also been treated for distemper, having all characteristic symptoms, and in addition a marked soreness of the bowels. Was told that the bowels had not responded to a cathartic. An enema was impossible and caused great pain. An examination revealed the fact that an injury of some sort had caused the rectum to become entirely occluded on account of an injury to the muscular walls, hence an enema was impossible. An incision each way, followed by curetting, afforded relief, and recovery followed in ten days.

Hence, even in distemper, correct diagnosis is as much an essential as in any other line of our profession.

Another important symptom in cases that have progressed for ten days to two weeks is in the appearance of the mucous membrane. How familiar to all of you is the icteric appearance, and how important this symptom should be in outlining our treatment. This indicates that the liver is congested with the waste products from many internal organs and is unable to secrete them as bile; but why? you will ask. There are two reasons for this: First, constipation of the bowels; second, the inflamed and congested condition of the organ. As a relief to the first, enemas and ordinary cathartics are sufficient. For the second, begin as soon as the cathartics have taken effect by giving podophyllin in one-fourth grain doses, six hours apart, until the liver has begun secreting bile in sufficient quantity to relieve the congestion of all internal organs and the distemper has disappeared. But you will say the kidneys must be looked

after, which is very true, but do as medical journals tell us—that nothing will purify and build up the circulation as will spirits of turpentine, given in small doses, and when called in the early stages of the disease we will find that nothing will give the speedy relief as will 5-10 m. of turpentine given in a tablespoonful of castor oil.

You will perceive from the above that I am not taking my instructions from dog fanciers, who are continually looking for better results from bottles of some favorite "cure all" than from their veterinarian.

A veterinarian of Lexington, Kentucky, recently said to me: "My treatment of K. N. O. 3 and strychnia, which was very successful in Detroit, has no effect whatever in Lexington;" but since he has begun dealing with the facts of the case and not so much of hearsay, his treatment has been much more successful. As well may we expect a few drops of some one's highly recommended and ever famous colic remedy to cure a case of constipation of two or three days' standing, as to expect any specific drug to be a bonanza to us in treating dog distemper.

Hence, you will not be surprised when I say I no more fear a case of dog distemper than I do pneumonia in a horse, and if you follow the treatment given above you will readily agree with me.

The trouble has not been that dog distemper will not yield to proper treatment, but rather that we have paid no attention whatever to the actual conditions, and have given treatment for something foreign to the disease itself.

DR. WM. DOUGHERTY, of Baltimore, sailed for Europe the first of June for health and pleasure. He expected to be present at the unveiling of the Nocard Monument, and to return in time to be at the New Haven meeting of the A. V. M. A.

THE TENNESSEE STATE BOARD OF VETERINARY MEDICAL EXAMINERS held their first meeting for the examination of candidates for certificates of permanent license in Nashville on June 13. Up to that time forty-three certificates of permanent license had been issued. Dr. George R. White, of Nashville, is President, and Dr. M. Jacob, Knoxville, is Secretary.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

LEUKEMIA.

By A. T. KINSLEY, M. Sc., D. V. S., Kansas, City, Mo.

Virchow and Bennett described leukemia in 1845. Kelsch and Vaillard made some observations upon the same disease in 1880 and at that time they thought it was infectious. A. M. Lucet reported a case in an ox and one in a dog, 1886, and thought the cause was of bacterial origin. Other cases have been reported occasionally, but the literature, and especially American literature, is quite meager upon the subject.

The reason for the scarcity of veterinary literature on leukemia may be traced to two causes: (1) The owner usually does not wish to feed and care for an incurable animal, and it is usually immediately disposed of; (2) since leukemia is not a common malady, probably the instructors in veterinary colleges have not considered it of sufficient importance to discuss it in the course of study, or, again, the veterinarian may have a clear-cut perception of the theory of leukemia and be capable of diagnosing it and yet hesitate in reporting cases.

Leukemia, as usually considered, is a pathological condition characterized by an hyperplasia of the cellular elements of lymph nodes, spleen or bone marrow, accompanied by an excess of leucocytes in the blood. The leucocytes to some extent indicate the lymphoid tissue affected.

Hodgskin's disease has been defined as a pathologic condition characterized by hyperplasia of lymphoid cellular elements without any marked change in the cellular elements of the blood. Leukemia differs from Hodgskin's disease only in the increased leucocytes in the blood, and it is probable that the two conditions are only different degrees of the same pathological condition. The increased number of leucocytes in the blood may be the result of the hyperplasia of the lymphoid tissue surrounding, and by pressure occluding, the efferent lymph vessels thus preventing the exit of the lymphoid cells, or, the hyperplastic cells may become detached and occlude the vessel.

The cause of the above conditions being unknown, it would be unwise to say that they are positively identical; but since they are so closely related, are we not justified to call them the



FIG. I.—SHOWING ENLARGED PRESCAPULAR AND PRECRURAL LYMPH NODES.

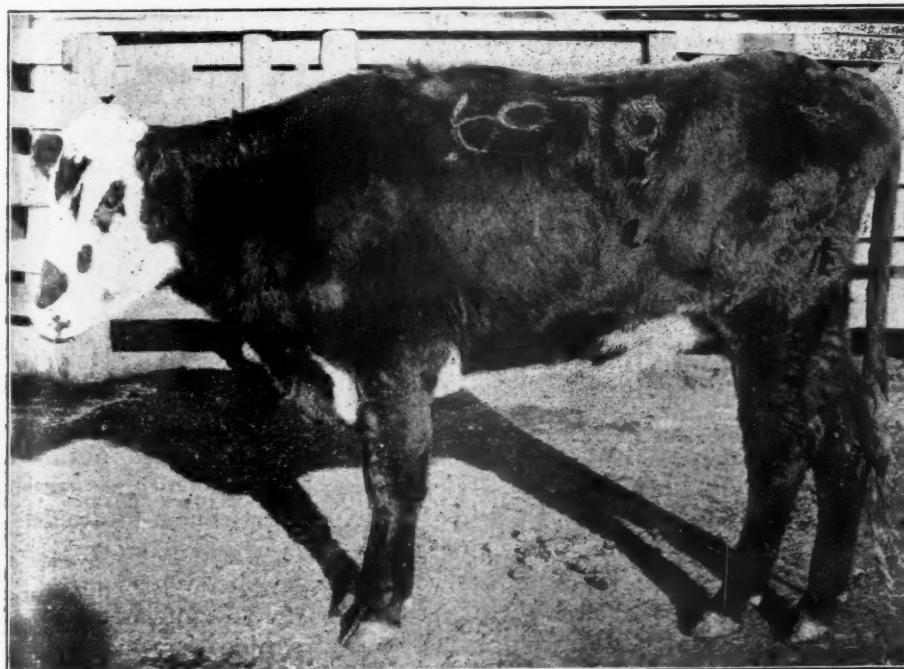


FIG. II.—(1) ENLARGED PRESCAPULAR LYMPH NODE.
(2) ENLARGED PRECRURAL LYMPH NODE.

same thing? In fact, Nocard practically affirmed their identity.

The lymphoid tissue involved has been used as a basis for classification of leukemia, hence lymphatic, splenic and medullary leukemia, but the different types are only rarely distinct and it is questionable if such a classification is justifiable.

The following is not reported as a positive case of leukemia, but rather a questionable one. A six-year-old pregnant cow of common breed was purchased at the Kansas City Stock Yards. The right and left prescapular glands were very much enlarged and the right precrural slightly enlarged, general conditions otherwise good. (See Cut 1.) She was placed in comfortable quarters and fed chop and hay. A record was kept of temperature, respiration and pulse. A blood count and blood smears were made daily. The following table shows the blood count during the period of observation:

Date.	Red Corpuscles.	White Corpuscles.	Proportion. White to Red.
Feb. 3	7,120,000	23,700	1 : 300
" 4	7,000,000	25,000	1 : 280
" 5	7,040,000	24,000	1 : 290
" 6	6,800,000	24,000	1 : 280
" 7	7,040,000	23,500	1 : 310
" 8	6,800,000	22,600	1 : 300
" 9	6,600,000	22,000	1 : 300
" 10	6,800,000	23,500	1 : 290
" 11	6,400,000	23,000	1 : 280
" 12	6,200,000	22,000	1 : 280
" 13	6,400,000	40,000	1 : 160
" 14	6,000,000	37,500	1 : 160
" 15	5,800,000	41,000	1 : 140
" 16	5,600,000	46,600	1 : 120
" 17	5,400,000	43,200	1 : 125
" 18	5,600,000	43,000	1 : 130
" 19	5,600,000	56,000	1 : 100
" 20	5,400,000	60,000	1 : 90
" 21	5,200,000	65,000	1 : 80

Practically all the white blood cells were lymphocytes, only one eosinophile cell and a very few polymorphonuclear leucocytes being observed in the entire time of observation.

From Feb. 3d to 12th, inclusive, the blood indicated nothing abnormal. On the 14th the cow gave birth to a premature calf, which died on the 17th, and of which a careful post-mortem examination was made without finding anything abnormal. On the 13th there was a marked increase in leucocytes; however, in this case it is a doubtful indication of leukemia because the period of parturition is normally accompanied by a marked

leucocytosis, which may be evident for one week or more. Unfortunately the cow died on the 21st.

Autopsy.—The post-pharyngeal, tracheal and prescapular lymph glands very much enlarged, the parietal pleura contained some lymphatic growths; the valves of the heart were thickened and contained some vegetative growths; the 2d, 3d, and 4th compartments of the stomach were surrounded by diffuse lymphatic growths; the mesenteric lymphatic glands very much enlarged, also Peyer's patches. The spleen and liver were practically normal, but the gall bladder was surrounded by a thick layer of lymphoid tissue.

Sections of the involved lymphatic nodes were obtained and a careful examination made of them. The cells closely resembled small lymphocytes. They were separated by a small amount of intercellular substance, which aids in differentiating leukemia from lympho-sarcoma. The nuclei indicated rapid cell multiplication by the karyokinetic figures present.

Another case was reported from the Stock Yards, the subject being a two-year-old steer, in which the prerural glands were almost as large as a man's head, and the prescapular glands were very much enlarged, as is shown by Cut 2. The steer died before a blood count was obtained. Other cases have been reported by the B. A. I. inspectors as leukemia in cattle and hogs, but the complete post-mortem records have not been made and no blood counts were obtained.

Note. Dr. Champlain photographer.

URETHRAL CALCULUS IN THE DOG.*

By PIERRE A. FISH, Ithaca, N. Y.

The patient, a male coach dog, four years of age, weighing about fifty pounds, was brought to the clinic † May 1, 1905. The history, as given by the owner, was to the effect that the dog appeared to be in a normal condition up to within about 24 hours of the time that he reached the clinic. Attempts at micturition were unsuccessful, although the animal used his best efforts.

An examination of the urethral tract was made externally and a small movable mass was detected at the proximal end of the bone of the penis. A small sized catheter was also passed,

* Presented at the Meeting of the N. Y. State Veterinary Medical Society, Ithaca, N. Y., Sept., 1905.

† N. Y. State Veterinary College.

but met an obstruction, easily distinguished by a peculiar grating sound and by the fact that the catheter would go no farther. The use of the catheter confirmed the external examination and as it was quite evident that the mass could not be forced out through the urethra, the patient was prepared for an operation.

Anæsthesia was effected by the injection of one-half grain of morphine sulphate hypodermically and the inhalation of ether. The operative area was shaved, disinfected, and a longitudinal incision was made on the left side of the sheath at the proximal end of the penile bone. The cut was continued through the urethra directly to the obstruction, and a calculus of irregular form and about the size of a small pea was removed.

It was planned to draw the accumulated urine from the bladder with a catheter after the calculus was removed, but before this could be accomplished, the patient passed a considerable quantity of urine without assistance, through the urethral incision. The wound was disinfected with sublimate solution and the urethral incision sutured with catgut; the dermal incision was also loosely sutured with the same material. The following day the stitches were removed from the external wound and some clots of blood removed. The sheath and testicles were considerably swollen. Thermofuge was applied locally and eight grains of ichthyl were given internally three times a day to relieve the inflammation. Urination occurred in a normal manner except that the urine last expelled was of a bloody character. The wound was dressed daily with sublimate solution and dusted with compound alum powder. The swelling of the sheath soon yielded to the treatment, but the orchitis continued. After a few days more of the same treatment, this condition also improved. The temperature hung about 103°. The highest temperature recorded was 103.8°.

Two weeks after the operation, 5 grains of sodium benzoate were administered three times daily and the ichthyl discontinued. The dog was discharged May 16, and the owner advised to continue the sodium benzoate and to dress the wound, which was not quite healed, with the sublimate solution.

On June 10, the dog was returned with symptoms similar to those exhibited May 1. The dog could pass only a few drops of urine at a time. The catheter showed an obstruction at the base of the bone of the penis as before. An operation was immediately performed similar to that of May 1, except that the incision was made upon the right side of the sheath. The calculus this time was not much more than a half as large as the

previous one, and with it came a still smaller one. In both operations, there were in addition to the larger calculi a few smaller ones of about the size of a pin-head.

In this operation the urine was not passed through the wound as before, and there was doubtless, less infection, because there was scarcely any swelling of the sheath, and the wound appeared to be in a healthy condition. There was some orchitis, however, which gradually improved without special treatment. The procedure and treatment in the second operation were very similar to that of the first, except that ichthyl was given for a shorter period and a tablet of calcalith three times a day was substituted for the sodium benzoate. The calcalith (a combination of calcium, lithium and colchicine) was given with the idea of its forming combinations with the phosphates and eliminating them through the intestinal canal, thereby decreasing the elimination through the kidneys.

Shortly after the first operation the urine was examined for phosphates, and the normal amount was found to be more than doubled. A partial analysis of the calculus was made. Phosphates and carbonates were found to be present, probably in combination with lime as a base. For three months there was no return of the trouble, and the owner reported the dog to be in as apparently a normal condition as ever.

On Sept. 13, the dog was returned by the owner. (The dog was exhibited at the State meeting, then in session). There was considerable orchitis and swelling of the sheath. On the left side of the sheath, near the scrotum, there was an opening in the skin from one to two centimetres in diameter. It appeared as if some urine escaped through this orifice, but an attempt to pass a catheter through it was not successful. An attempt to pass the catheter through the penis was likewise unsuccessful at first, although it was passed later. The swollen condition of the parts made an external examination for calculus very difficult.

The dog was placed under morphine-ether anæsthesia and the skin orifice enlarged and the incision carried down to the urethra. A catheter was easily passed through this orifice into the bladder. A catheter was also passed the full length of the penis without obstruction, indicating that no calculus was present in the urethra and probably no stricture. The wound was dressed antiseptically but not sewed.

On the day after the operation, there was no trouble in passing a catheter and drawing some of the urine. A small opening

now appeared in the skin, upon the right side of the sheath, as if there might be pus present, although none was seen. Temperature 101°. The wound was dressed and injected with compound iodine solution (Lugol's). The swelling of the sheath soon decreased, as did that of the scrotum, although more slowly. The urine at first passed through the wound, but on the sixth day after the operation it was observed to pass normally through the penis.

Within two weeks the swelling and orchitis had disappeared and the wound was healing nicely; but at this time the dog was not feeling so lively as hitherto, and soon gave evidence of sickness by refusing his feed and developing a slight rise in temperature. The treatment consisted of tonics and antipyretics, without much apparent change in his condition. Although not improved in his health, he was taken home by the owner after the third week and the treatment kept up. The dog, however, grew weaker, and two weeks after he was taken home he wandered away and never returned. It is much to be regretted that an autopsy could not have been held.

It was brought out later, that just previous to the last attack the owner had washed the dog in a creek, and he believed that the dog had taken cold at this time. The swelling of the sheath and scrotum may have been caused by this cold bath, as the tissues in the above named parts were probably weakened from the previous operations, and therefore more susceptible—the effect ultimately extending through the whole system, and being more or less responsible for the fatal ending, notwithstanding the fact that the wounds were healing nicely and that the surgical part of the case was apparently successful.

A SUPPOSED CASE OF RABIES.*

By DR. R. W. McDONALD, Flint, Michigan.

About Nov. 30th last a family vacated a house and by some means imprisoned a cocker spaniel dog in the house vacated. Ten days later, the discovery being made, and the dog being released, at once began to act strangely; he ran amuck for a number of blocks, having bitten or attempted to bite a number of dogs, among the number being a spotted coach dog belonging to J. B. Wilson. He was reported to the police and was destroyed. About ten days later the Wilson dog began showing a quarrelsome disposition by biting his daily companion, a

* Presented to Annual Meeting of Michigan State V.M.A., Feb. 6, 1906.

female of the same breed, also four or five other dogs in the immediate vicinity. At 6 P. M., on following Mr. Wilson, he was noticed to skulk behind, and on arriving home he refused to remain in the house, as was his custom, also refused to eat, nothing serious being thought of it at the time. About 9 P. M. Mr. W. received a telephone, about four miles distant, asking what they had done to Duke; they said he came there about 7 P. M. This place in question is one where the Wilson family, also the dog, frequently visited. The dog remained till next morning, and was apparently nervously affected, as the eyes were bloodshot and also showed a nervous tremor. He left there, and, instead of going home, took a westerly direction, and, after having gone four miles, he forced a fight with a farmer's dog. From there he still pressed on, and overtook a man that was gathering ashes; followed him till nightfall. The next place he was heard from was where a prayer meeting was being held; when the meeting was dispersed he followed an old gentleman home, and on arriving at the house he forced the farmer's dog to peacefully repose in some of the outhouses, while he occupied comfortable quarters behind the kitchen stove. Next morning he again forsook hospitality and evidently had Horace Greeley's advice in mind, for he again went West. During the day, as far as we know, he had three fights with farmers' dogs; in one he forced one of the eyes out of its socket and left it entirely exposed; this dog had to be destroyed. The party owning the last dog attacked, telephoned ahead to a neighbor to watch out for a mad dog, which he did, and destroyed him. This occurred on a Friday. On Monday Mr. Wilson heard the dog had been destroyed: he drove about 14 miles to the place and exhumed the dog's head, and I in turn sent the brain to Prof. Marshall, and after 20 days' wait he informed me that the animals injected did not show any bad results, indicating that the dog did not suffer from rabies. I might say, that, so far as can be learned, dogs were the only animals that he attacked, and also his mode of attacks was confined to the heads of his antagonists.

Now, gentlemen, from Prof. Marshall's investigation, the animal did not suffer from rabies; and, if not, what was the malady?

PLUGGING A CARIOUS TOOTH WITH GUTTA-PERCHA.

By G. L. MEHOLIN, V. S., Fairfax, S. D.

March 10, a large aged bay gelding was brought to my in-

firmary with a very foetid discharge from the left nostril, and the fourth upper molar upon examination proved to be mostly decayed—so much so that I could not get sufficient hold of it with forceps to extract it; so I decided to trephine, which I did the next day. I found the facial sinuses literally packed full of the most foul and offensive masticated food, mostly hay in different stages of decay, that I have ever seen, and I have had considerable experience with decayed teeth and different disorders of the teeth and facial sinuses. There was probably as much of this, including the pus, as a pint tin-cup would hold, and contained many hard, spongy, little balls of masticated hay, which I presume were moulded in the cavity of the tooth and forced up by the accumulation of more in the alveolar and tooth cavity, since these were mostly in the lower portion of the accumulation. The opening into the nasal cavity was at the very upper and inside corner of the sinuses, accounting for the fact that none of the accumulation had filtered through into the nasal cavity and been discharged, as it did not, as near as I could determine and from what the man told me who owned the animal.

I irrigated this accumulation, and removed it nearly all through the opening made by the trepene, and punched out the tooth and treated for several days with mild antiseptic irrigations, but the alveolar cavity would not granulate to any purpose, while the discharge from the nostril ceased and the wound became sweet and clean and healthy otherwise. On the 29th I gave horse a heavy feed, and all the good hay he would eat, and what water he wanted, and in the afternoon I cast him and cleaned the mouth and cavity nicely and irrigated wound as usual and plugged the cavity (which was yet larger than a large sized walnut and seemingly not granulated a particle) with gutta-percha and irrigated with cold water and allowed him to rise. Did not give him any feed until the next day late, when the gutta-percha was thoroughly set and as hard as it ever would be.

I saw this case some few days ago and the plugging is still intact, and he is doing very nicely. I, of course, lowered the corresponding lower molar as much as possible, and there is no grinding wear on the plugging as there was on the tooth extracted, since the lower molar had grown much longer than the ones adjoining it on either side. This animal was probably 18 or 20 years old, but quite healthy, and I think his age the cause of the alveolar cavity not granulating.

ACCIDENT WITH CHLOROFORM.

By A. W. WHITEHOUSE, V. S., Laramie, Wyoming.

I have a good deal of trouble in my dental work, partly with the range horses which have been roughly broken but never gentled, and which have no intention of having their mouths interfered with at all, and partly with those whose mouths are infested with the beards of the foxtail grass (wild barley—*hordeum jubatum*), which causes painful ulcers and fistulæ, and consequently the most vigorous resistance. It has recently been my practice to put these cases under partial anaesthesia in preference to throwing and securing them. I have had a muzzle constructed out of an ordinary feed bag. The upper part has a strap to draw it snug round the face. The leather bottom is cut out and hinged, with a couple of straps stitched at each end across its inner face to slip the rag under. A leather cup is strapped on snugly over this hinged flap. From one to two ounces of chloroform will produce in about 10 minutes sufficient dullness to allow of about 15 minutes' quick work, even in a very vicious animal, and they generally stand up.

My case was a bay work horse, 16 years old, that needed filing, and had a bad foxtail fistula from below the tongue and coming out just back of the junction of the rami. I put on the muzzle and gave him an ounce and a half of chloroform. I noticed his jaws working, but paid little attention, supposing he was trying to push the rag away with his lips. After 8 minutes, as he was still in the excited stage, I got ready another ounce on a fresh rag. I then opened the cap of the muzzle and found that the first rag had disappeared. Reaching as far as he would let me in his mouth I could not feel it, nor could it be detected from outside. Crumpled up this rag was rather larger than a man's fist. I then had him thrown and applied a Sharp & Smith speculum in a hurry. I could now feel part of the rag in a tight wad back of the last right molar. It was wadded too tightly to take hold of with the fingers, and I had to use a forceps to withdraw it. The last part withdrawn was in a long tail, and I have no doubt it had entered the oesophagus.

The result was a very profound anaesthesia considering the small amount of chloroform used, and a rather bad pulse for about a minute. I shall have to put a piece of wire netting across the muzzle, which will prevent a repetition of the accident. I fancy, however, that the occurrence is very unusual.

EXTRACTS FROM EXCHANGES.

GERMAN AND HUNGARIAN REVIEW.

By ADOLPH EICHHORN, D. V. S., Bureau of Animal Industry, Washington D. C.

THE COURSE OF INFECTION IN FEEDING TUBERCULOSIS [*J. Bartel, from the Pathologic-Anatomical Institute, Vienna*].—The author concludes in this work the final results of the experimental studies which he commenced in 1904. (1) Rabbits and guinea-pigs received one dose of a floating culture, dropped into their empty mouths. It developed a cervical, bronchial, and mesenteric lymph gland tuberculosis, apparently without producing changes on the respective mucous membranes. (2) If tubercle bacilli in the form of floating cultures were mixed with the food, principally the mesenteric lymph glands showed the infection. (3) Still more marked were the mesenteric lymph glands in an exclusive participation of the affection, when pieces of tubercular organs were fed. Notwithstanding that the tissue macroscopically appeared normal, microscopically tuberculosis of the epitheloid cells were proven. Oftentimes the presence of tubercle bacilli in the lymphatic tissue was only established through experimental inoculations, in some cases with direct cultivation. The different extensions of the processes, according to the methods of feeding (Nos. 1, 2, 3) deserve full consideration. In one case B. proved the presence of tubercle bacilli in an experimental animal, 104 days after one feeding of tubercle bacilli; they were found in the tonsils, cervical and mesenteric lymph glands. The author concludes, on the ground of these results, that tuberculosis does not have to manifest itself at the regional lymph glands near the place of infection. Therefore, according to B. (accepting that the conditions in animals can be applied to men), in the prevention of tuberculosis uniform attention must be paid to all modes of entrance. An infection of distant groups of lymphatic tissues is possible from an entrance at another place; while the regional tissues are macroscopically and microscopically normal, yet in the extensive propagation of tubercle bacilli they may be present at both places. According to B., an invasion of tubercle bacilli through the intact mucous membrane, is not only occasional after receiving once tubercular bacilli into the digestive tract, but is regular; through this passage, of course, the bacilli

become attenuated, so that sometimes their presence cannot be established by any method, while later, in spite of the absence of microscopical lesions, they are proven frequently (through culture or animal experiments). In most cases the bacilli which were isolated in the second stage could not produce specific changes. Their virulence is reduced, but they are reproductive and remain only for a period in the stage of latency.—(*Hygienische Rundschau.*)

THE COURSE OF THE NATURAL INFECTION OF TUBERCULOSIS IN GUINEA-PIGS [*J. Bartel and F. Spieler*].—In consideration that the experiments relating to the mode of infection of tuberculosis were partly up to the present carried out under unnatural conditions, therefore the authors tried by another just as simple method as a recommendable way to attain their object. A large number of guinea-pigs were given to board with a family affected with tuberculosis. Hereby a series of the animals were kept in cages, to the others perfect freedom was granted. The animals were called for at different intervals; they were observed for some time, then killed, and a minute bacteriological examination made, as well as cultures inoculated from the various organs; also experiments of transmission to other guinea-pigs were followed. The results of the experiments are very remarkable. Most of the animals kept in the cages showed swellings of the cervical lymph glands, frequently rapid emaciation, without the possibility of disclosing the presence of tubercle bacilli. In two cases of this series, however, a pronounced tuberculosis of the lymph glands and organs developed. Still more frequently were found the animals of the other series infected with tuberculosis. Occasionally the presence of tubercle bacilli in the lymphatic tissue was proven by inoculations, though the tissues showed not the specific tubercular changes. Further, it is important that in a large number of those cases in which early affections of the lymph glands were demonstrable, not the bronchial glands but the cervical and mesenteric glands were affected. Based on these observations the authors believe—especially considering the infection of the child organism—that the importance of the "buccal cavity and intestinal canal," as a point of entrance for the tubercle bacilli, outweighs by far the direct entering of the bacilli into the deeper respiratory passages, and to which authors are attaching too much importance. This holds not only to tuberculosis in general, but also for lung tuberculosis.—(*Hygienische Rundschau.*)

A CASE OF SADOMIA AND SADISM [*Grundmann*].—One night a hotel keeper was awakened by a painful bellowing of one of his cows. He hastened to the stable and found one of his animals in a serious condition, and thought it advisable to slaughter the cow immediately. The autopsy revealed the following changes: the lips of the vulva and also the vagina swollen, the mucous membrane highly reddened; in the connective tissue around the rectum numerous haemorrhages; in the wall of the rectum a rupture about 3-4 cm. long; the mesentery, colon, the right lobe of the liver, the omentum and the diaphragm showed lacerations, also the superior part of the right lung had similar injuries; the pleura revealed extensive haemorrhages. Similar injuries were noticeable on a nine-month-old heifer, this one showing symptoms of sickness since that same morning, and later had also to be slaughtered, as the condition became more aggravated. The examination proved that one of the stable employés had sexual intercourse with the heifer, and then standing up on a stool tried the same performance on the cow; the cow kicked, threw the man from the stool to the ground. He then took a pitchfork and pierced its pole into the rectum of both animals as far as he could. The court sentenced him to six months in the penitentiary and to the loss of his citizen rights for three years.—(*Berl. Thierarzt. Wochenschr.*)

ENGLISH REVIEW.

By Prof A. LIAUTARD, M. D., V. M.

SARCOMA OF THE SUB LUMBAR LYMPHATICS IN A HORSE [*W. H. Brooke, M. R. C. V. S.*].—The subject of this record was a brown gelding, 14-15 years old, which three years previous had to be tracheotomized to be able to work. He did it up to this last sickness. Six months ago he appeared to be in bad condition, feeding precariously. There was nothing very marked, and yet it looked as if something was wrong in the digestive apparatus. After a time the bowels became relaxed and kept in that condition until his death, when the excreta were almost liquid and of an extremely unpleasant odor. The teeth had been fixed, his feeding and watering carefully attended to. Was it tuberculosis? Tested with tuberculin, the result was entirely negative. There were no parasites in the bowels.

The author concluded that the trouble was probably a lymphatic obstruction or tumor. His condition became so bad that the animal had to be destroyed. At the autopsy it was found that the small intestine was much shrunken and contained but a little ingesta. The large intestine was scarcely half its ordinary size. The bloodvessels of the intestines were dilated and contained blood of a deep venous tint. Along the margin of the large intestine there was a chain of tumor-like enlargements. Above the ileum, a short distance from the cæcum, a lobulated growth of encephaloid consistency, weighing four pounds, was found. Under the kidneys there was a great mass of tumors, involving the posterior part of the root of the mesentery, weighing a little over 40 pounds. It was irregularly spherical, and in its centre were found some lymphatic glands, with the lobes widely separated by the invasion of the tumor. Through it ran bands of fibrous nature, interspersed with soft masses of encephaloid consistency. The nature of these growths, made out by the microscope, was sarcomatous and composed of round cells.—(*Journal of Comp. Path. and Ther.*)

ON THE USE OF BETA-EUCAINE AND ADRENALIN AS LOCAL ANÆSTHETIC [*E. Wallis Hoare, F. R. C. V. S.*].—Three conditions are essential for a local anæsthetic to fulfill: (1) it should be non-toxic in ordinary amounts; (2) it should prove effectual in rendering the part into which it is injected perfectly anæsthetized; (3) it should not exert any injurious effect on the tissues so as to interfere with healing. For the author these conditions are met by the combination of B. eucaine and adrenalin chloride, to which are added the effects of the last mentioned agent, rendering the superficial structures practically bloodless by the contraction of the capillaries. The solution used by Mr. Hoare consists of B. eucaine hydrochloride gr. 1-6th in each 16.9 minims (practically one per cent.) of water, combined with adrenalin chloride gr. 1-2000th. Diluted with four volumes of normal salt solution it forms the solution to use as a local anæsthetic. Mr. Hoare has used the concentrated solution in canine practice for the removal of tumors, injecting 15-20 minims around the base of the growths, at different points, according to the size, waiting ten minutes before operating. Half an ounce of the solution has been injected without any toxic effect whatever. Its use in horses is rather limited, although in the case of a nervous, well-bred mare the author was able to remove a large, very deep-seated tumor by the in-

jection of three drams of the solution in amounts of 30 minimis in different parts of the growth. No pain was manifested and no restraint resorted to. The solution keeps well, even after the bottle containing it has been opened once or twice. For the author this new compound will find its application in many cases where chloroform or any other means of anaesthesia are contra-indicated.—(*Veterinary Record.*)

EXTRUSION OF BOWEL—RECOVERY [*John Renfrew, M. R. C. V. S.*].—The question put by the author at the end of his record is: "Why did this animal not collapse? The bowels were out, filthy stable, and were all the time in the arms of an assistant whose clothes had not been sterilized for a day or two. . . ." Why, indeed? A horse had a suppurating cord; at intervals the discharge stopped, and an abscess was the result. When opened and drained the horse resumed work. This condition lasted for some time, when one day, an abscess having formed, an assistant of the author called to open it. In doing so, the horse made a plunge and the small intestine escaped through an abdominal wound, to be fortunately received and held in the assistant's arms. The position was critical and the surroundings as undesirable as could be imagined. "A dimly-lighted railway arch in the centre of the city, with not a breath of fresh air, no attempt at drainage, and a dung pit in one of the empty stalls." To throw the horse meant probable injury to the bowel; so it was decided to return them into the abdomen with the animal standing. After cleaning the hands and instruments as well as possible, the bowels and clothes holding them were thoroughly disinfected with a 10 per cent. solution of carbolized glycerine in tepid water, and slowly but successfully returned into the abdomen, an operation which, however, was considerably facilitated by the shape of the patient's abdomen. The wound in the abdominal wall was eight inches long; the edges, cleaned and disinfected, were brought together with twelve interrupted sutures of silk and eucalyptus tape, all of the structures being caught together in the sutures. The wound was sponged with spirits of turpentine, painted over with collodion, and a pad of antiseptic lint placed over it. It healed by first intention, but the discharge from the suppurating cord remained.—(*Veterinary Record.*)

FRACTURE AND REMOVAL OF THE HEAD OF THE FEMUR [*E. Hibbard, M. R. C. V. S.*].—A Landseer Newfoundland dog, aged seven months, was brought to the author for a very severe lameness of one hind leg, the result of an accident, the dog hav-

ing been run over by a cart. A diagnosis of fracture of the femur was made and a treatment applied, which, after six weeks, proved without result. The dog being useless, in his condition, an operation of stitching the pieces of bone with wire suture was suggested and accepted by the owner. The dog was prepared, put under chloroform, and the operation started by cutting the tissues down to the loose pieces of bone. This was found to consist of the complete head of the femur entirely loose from the body of the bone. Instead of attempting wiring the fragments of bone, the head of the femur was dissected out and removed. The wound was treated antiseptically and cicatrized without complication. The dog is now three years old; he is slightly lame, as could be expected with a leg shorter than the other, but he is otherwise in perfect health, and seems to have no pain whatsoever.—(*Veterinary Journal*.)

SUPPURATION OF THE HEAD OF THE FEMUR [*W. Paner, M. R. C. V. S.*].—A large Great Dane bitch, 10 years old, in jumping in a wagon knocked herself against the seat and hurt herself so badly that she grunted with pain and became very lame. She remained walking on three legs and very seldom put or rested her paw on the ground. A diagnosis was made of tendonous lesions of the hip joint and a treatment prescribed of hot fomentations with applications of sedative lotions. This treatment was kept up, but the pain seemed to increase, especially when the leg was carried in abduction. Yet no enlargement of the joint was visible nor any crepitation detected. After three months of treatment, there being no improvement, the animal was destroyed. At the post-mortem the head of the femur was found almost all gone, macerated as it had been in suppuration of the bony cancellated structure of the femur, which was diseased in the two superior thirds of its length.—(*Veterinary Journal*.)

INTERESTING CRYPTORCHID [*E. Hatch, M. R. C. V. S., and Fred. Hobday, F. R. C. V. S.*].—A cart colt, two years old, is a regular nuisance to his owner. He mounts all animals that come close to him, geldings, mares, and even cattle. He must be castrated. It is a case of hypospadias. Looking at him casually from behind he has the appearance of a female. From what should be the vagina protrudes a malformed penis, which when in erection measures ten inches in length. There are two mammae, well developed, and the teats are pierced normally. The animal is cast and chloroformed. Search is started for the testicles. One is found in the perineum, almost subcutaneously,

and about six inches below the badly formed penis. It is of normal size. The other, which is much smaller, is found in the abdominal cavity. Recovery progressed without trouble.—(*Veterinary Journal.*)

UNDIAGNOSED FOREIGN BODY [*M. R. C. V. S.*].—The history of this cat is vague. Aged one year, he has refused food, and seems to be in pain, rolling on the floor and flinging out somewhat like a horse with spasmodic colic. When these acute symptoms have subsided, there seems to be nothing abnormal about him, and all that is seen amiss is a little swelling around the extremity of the left wing of the atlas, which is small, hard and not painful. Expectant treatment is prescribed. Next day condition apparently improved. Animal is brighter; swelling perhaps a little larger. On the third day, if the condition is a little better, the swelling is evidently larger and softer, which is more marked the following day. The swelling bursts open, leaves a little opening just below and behind the wing of the atlas. On manipulating the swelling, the presence of a foreign body, not previously suspected, is made out, and through the orifice of the abscess a thin sewing-needle, two inches long, is extracted, carrying with it a long piece of thread. Of course recovery was rapid and uneventful.—(*Veterinary Record.*)

DIAPHRAGMATIC HERNIA [*J. R. H.*].—This black gelding is difficult to shoe. Taken one day to the shop, he allowed three shoes to be put on without much trouble. But when it came to the fourth he became restless and means of restraint had to be resorted to. The use of a side-line made him more violent, and finally he was put in stocks, with two broad leather bands passed under his belly, with crossbars behind and in front of him. He was not tied, but held by a man. He was quieted and the shoe could be tacked on; he was noticed to sway twice in the stocks, sank down, and was dead. At the post-mortem, on opening the abdomen and chest it was found that the sternal flexure of the colon was displaced forward and entered the chest through a large opening of the diaphragm. The muscular portion of the muscle was completely torn from the xiphoid cartilage and partly from the ribs on either side. The edges of the torn muscle had the appearance of having been ruptured before death. The heart and lungs showed all the characters of asphyxia, which was certainly the cause of death by pressure upon the lungs of the displaced viscera.—(*Veterinary Record.*)

ARMY VETERINARY DEPARTMENT.

NOTES ON THE VETERINARY SERVICE OF THE RUSSIAN ARMIES IN THE FAR EAST, 1905.

BY JOHN VAN RENNSLAER HOFF, A.M., M.D.,
Colonel, Assistant Surgeon-General, U. S. Army, Military Observer.

The Veterinary Corps of the Russian Army was organized on the lines of the Medical Corps, of which Department it was until recently a part, but in the East was an independent factor of the Sanitary Department. The Russian veterinarian is educated in his profession, and so far as I could see had about the same standing in the Army as the physician, with whom he took rank in the "civil grade," the senior veterinarian having the assimilated military rank of Major General.

During peace times there are, according to existing regulations, veterinary *personnel* and *materiel* (hospitals) with mounted units as follows: Cavalry and cossack regiments, detached squadrons or sotnias, and *cadres* of the cavalry reserve. Artillery brigades and mortar regiments, horse artillery and cossack batteries, train battalions.

The veterinary hospitals must receive all sick public animals and the private mounts of officers, for all of which forage is authorized. The regulations are quite specific as to the interior economy of veterinary hospitals; they require that such shall consist of three subdivisions: First, for convalescents or slightly sick; second, for seriously sick, and, third, for infectious diseases (quarantine). The duties of the veterinary surgeon are also prescribed in detail in the veterinary regulations.

In war, sick horses are treated in veterinary organizations at the front, in the train, and at the depots. The veterinary hospitals of the first two categories follow their respective organizations and are designated by their names—those of the third are assigned for the care of the reserve horses, and the animals attached to corps, and are designated by numbers. The first named, being with troops, are practically always organized; the list of such is as given above. The veterinary hospitals of the second category are for the trains of the infantry, rifle and reserve divisions, cavalry and cossack divisions, pontoon divisions and military transport. The hospitals of the third category are assigned one to each corps.

These may be supplemented in case of necessity by additional

veterinary hospitals assigned to separate horse reserves, or to fortresses.

Veterinary hospitals for the division trains are established by the division commander, for the pontoon battalions by the corps or detachment commander, and for the transport by the chief of communications.

The hospitals with horse reserves are under the supervision of the chief veterinary surgeon of the military zone; those with the corps are under the corps' chief veterinarian.

The *personnel* of a depot veterinary hospital and the money allowance for the same are as follows :

Officials.	No.	Yearly allowances.												Class of office.	Class of allowances.		
		Original pay*		Increase.			Table money Orig. increase.										
		*R	K	R	K	R	K	R	K	R	K	R	K				
Superintendent of hospital . . .	I	420	00	387	00	630	00	582	00	600	00	553	20	VIII	vet II		
Ass't veterinarian . . .	I	360	00	333	00	540	00	498	00	300	00	276	00	IX	vet III		
Senior feldsher . . .	I	34	28	33	60	66	12	64	80								
Junior feldsher . . .	3	25	87	25	35	49	90	48	90								
Sergeant clerk . . .	I	24	49	24	00	36	73	36	00								

* A ruble is worth about 51 cents U. S. C.

The staff of a veterinary hospital is based on the requirements of one hundred patients.

Military veterinarians have the same rights as military physicians with corresponding allowances for quarters, subsistence, and servants. Feldshers and sergeants receive clothing and subsistence in addition to the above. One soldier is allowed per three horses under treatment.

The senior veterinarian of the depot is in command of it and is charged with its administration; he is accountable for the public property pertaining to the hospital, including the public funds for subsistence of *personnel* and patients, and all records. He is responsible for the discipline of the *personnel*, and is authorized to issue orders thereto, which are entered in the hospital order book. He has the rights of a regimental commander in administering his command.

Veterinary hospitals in the theatre of operations receive their supplies of medicines, surgical instruments and dressings, etc., from field veterinary dispensaries and temporary supply depots.

The following schedule indicates the diseases for which horses should be admitted to hospitals in war time. I might

state here that in battle regular veterinary first aid stations were established in the different fighting organizations.

Causes of admission to train veterinary hospitals: Severe wounds, sore backs or shoulders, lameness from diseased feet, etc., varicocele, severe diseases of the eye and exhaustion requiring rest and nourishment. The depot hospitals receive cases of like character.

Destruction is ordered in the following conditions: Glanders, madness, complicated wounds, fractures, paralysis, wounds of joints, etc., in which the cost of cure is likely to exceed the value of the animal, complicated sprains, hoof rot.

The following was the form of register used in veterinary hospitals:

Name and duties of Horse.	Organization.	Disease.	Admitted.	Discharged recovered.	Transferred to other hospitals.	Died.	Incurred wound.	Incurred disease.	Glanders.

Month and day of admission and discharge of each horse is entered in column "recovered," "transferred," or "died."

Animals admitted to a train hospital were accounted for on the forage requisition of the divisional train or on that of the organization where the hospital was located, but their subsistence was independent of the hospital as a special detachment. Professional reports were rendered to the chief veterinarian.

Commanders of organizations at the front were required to evacuate all animals that could not be treated with the command, to train or depot hospitals. Such animals were supplied with halters, nose-bags, brushes, currycombs and blankets, and accompanied by a certified ration return. When recovered the animals were returned to their commands with a like certified ration return. When it was impracticable to return the horse to his command he was turned into the nearest horse depot or other organization as might be directed. All veterinary hospitals were subjected to inspection by field army veterinary inspectors.

The foregoing somewhat desultory account will at least in-

dicate that Russia had given considerable attention to organization for the care of the animals of her armies in the Far East, and I will now endeavor to show something of what was accomplished by the Veterinary Department.

The following is based upon an official statement made by the Chief Veterinary Inspector of the Army of the Rear, who was impressed with the fact that the problems for solution by the Veterinary Department in the Far East where *mutatis mutandis* quite as difficult as those of the other branches of the service.

The long journey across Asia subjected the horses to constant exposure to anthrax, which is enzoötic in that region. This disease manifested itself among Russian horses in the intestinal form, caught from food or stable litter, with a mortality of from 50 to 80 per cent., and there was every reason to expect a possible epizoötic and certainly a considerable loss from this infection. Preventive inoculations of antitoxin introduced by Professor Langsh, of Kasan, Russia, were used with most satisfactory results. Dr. Dorbrotvorsky reports that this invaluable remedy can be used at any time or place without interfering with the use of the animal, and it is undoubtedly due to Langsh's serum that the army horses escaped an epizoötic of anthrax.

Glanders is universal in Manchuria, but was so effectively controlled by sanitary measures, constant inspection, immediate isolation and destruction in declared cases that the actual loss was less than one in 1,000. Surra did not appear among the Russian animals. In this connection it is stated that the forage obtained in Manchuria, corn, oats, barley, *kaoliang* beans, bean-cake, *shu-mi-tzu* (hill rice) straw and even *kaoliang* stalks caused no disease worse than an occasional attack of mycotic inflammation of the digestive tract.

Rinderpest is epizoötic in Siberia. This very infectious disease, which ordinarily is only eliminated by destruction of the infected animals, was satisfactorily controlled by the use of anti-pest toxin, prepared at the Chetinska and Iro antitoxin stations near Troits Kosavaska. This remedy, not only prevented but actually cured the disease and rendered unnecessary the destruction of cattle, which would have ordinarily been demanded in 66 per cent. of all the animals received. When used as a preventive the antitoxin does not produce the disease in modified form. The authority above quoted stated that "antipest toxin made it possible to feed the Russian Army with fresh meat, and without it we would have been compelled to rely upon tinned

meat, which contingency was considered in connection with our having to purchase our meat supply in America. This war has settled beyond question the fact that we will not have to depend upon tinned meats so long as cattle on the hoof are available and have been immunized by antipest toxin." Besides rinderpest there were no cattle diseases of importance; aphthæ, pleuro-pneumonia, etc., were little to be feared.

I regret that it was impossible to obtain the full morbidity and mortality statistics of animals used by the Russian armies in the Far East. I addressed a letter to the Chief Veterinary Inspector in the field, but received no reply thereto. The statistics of the rear (furnished from the Harbin office) are as follows: Horses received from Russia, including Siberia, January 1, 1904, to August 1, 1905, 225,819, exclusive of 542 sick; horned cattle from Siberia, 150,419; (horned cattle dead from rinderpest 10,000); sheep passed through Harbin, 100,611.

There was a very careful system of inspection along the entire line of communication, with numerous rest stations and veterinary hospitals, inspection points, etc., scattered between Russia and Manchuria.

There were veterinary hospitals at Harbin. The statistics of one was as follows: July, 1905, treated in hospital, 133 horses; Aug., 1905, 123; Sept., 1905 (to 20th), 113.

During this period 267 horses were treated in quarters. The mortality was as follows: 1 anthrax, 7 glanders, 4 hydrocephalus, 2 apoplexy, 4 lumpy jaw. Among some of the other diseases treated were influenza (epizootic), 60; rhinitis, 23; lumpy jaw, 13; colic, 27.

I find in looking over the notes of an interview with the Chief Intendant that he stated the wastage of animals had not been computed. He further said that 150,000 mules had been purchased in Manchuria.

The important lesson for us in the Russian veterinary experience is the successful use of antitoxin sera in the treatment of animal diseases. Nothing is said of tetanus by the veterinarians, from which I infer there was little among the animals in the Far East. I presume there must have been some cases, and a large percentage of those probably died, if the veterinary experience was the same as the medical. Russian physicians regard the antitoxin of tetanus as at present made as of little or no value. But with anthrax and rinderpest the results were most satisfactory, and I believe the antipest serum has a present and future value to us which should not be overlooked.

VETERINARY AFFAIRS IN THE ARMY.

Apropos to numerous references concerning the Army Veterinarian, relating to questions of Hygiene, Sanitary Police, etc.:

The actual necessity, as observed by many officers of the Army, has led to the employment of veterinarians. In early days, but a few years ago, before the Hispano-American conflict, all of the ten regiments of Cavalry then existing did not have the authorized two veterinarians to each organization, and the Artillery veterinarian, strictly speaking, was unknown.

It is only since this period that the Army veterinarian has been recognized as a part of an organization; recommendations from him to-day are approved or may be disapproved, as his immediate superior authority may elect.

Our veterinarians, during the past six years have not been idle; true it is, the literature emanating from this source has not been voluminous, but it can be safely stated that most of the gentlemen have been prominent in urging reforms, etc., especially in the methods of hygiene, the construction of stables and their sanitation.

As the veterinarian in the Army to-day is but assimilated to the regular service, not a full officer, it can hardly be expected that he will be nominated on a board of officers, "although they possess intelligent power to think on these points and similar subjects."

But a short time ago (1903) the question of Post Veterinary Hospitals was brought before the Department forcibly. Plans and specifications were prepared, with the assistance of veterinarians in different departmental posts, forwarded to the Quartermaster-General, with the result that more or less of a uniform plan was adopted for a hospital that would answer the needed purpose for both temperate and semi-tropic climes.

At present one model hospital built to accommodate forty patients has been erected and is in daily use. This building is constructed of stone, situated on an elevation; it contains roomy box-stalls, single stalls, one large concrete base and side-walled bath for hot or cold water, two isolation wards and several screened stalls to absolutely prevent fly infection.

An operating and dressing room, 30x30, well lighted above, hot and cold water connections, a well equipped dispensary, with comfortable rooms and accommodations for permanent hospital stewards.

This is the first of its kind and it is contemplated to build

more such ones at different large Army Posts, in the near future.

This is one result of accomplished efforts of the present Army veterinarian, and we trust that more will be accredited to him.

The duties prescribed in Army Regulations are not arduous. The candidate for the service may expect, as many do, a life of comfort and ease. To those, however, who expect to gain merited future recognition (possibly promotion by selection) much remains to be accomplished. The daily record of animals treated, the compilation of a yearly record, statistics, etc. It may be safely stated, that such record is not maintained at all mounted posts.

At present, daily, weekly or monthly inspection of stables, corrals or paddocks is not entrusted to the veterinarian. Why? The respective organization commanders are responsible for the sanitary conditions; the medical officer frequently makes authorized inspections of these surroundings, and to illustrate an incident during 1903, the daily watering troughs, filled with drinking water for two mounted organizations, were given a liberal application of crude petroleum, to kill the larvae of *Stegomia fasciatia*, which might be present.

While such measures may conserve the health of enlisted men, it in this case suffered the animals to remain thirsty for some time.

The hygienic measures and sanitary conditions rightfully fall within the domain of the veterinarian; it is his duty to make recommendations to his immediate post commander. Reasonable requests, sound and practical suggestions are always given careful consideration, even though they may not always be granted.

Medical officers have much sanitation to control outside of stables and their surroundings, and I believe he would be only too willing to allow the sister profession to officer this work. While in many instances human and comparative medicine are diametric, the time is not far distant when it is to be hoped that in the Army both branches will become assimilated and governed if necessary by a surgeon-general.

Among the veterinarians of our service it may be said there are no Kitasatos, Reeds, Kochs, etc., neither have the limited means of the majority of our colleagues allowed such opportunity for research. The tendency to specialize in modern medicine to-day is forcibly apparent. In human medicine, thousands

of practitioners accept certain standard works of authority, certain members of the profession have acquired distinction by virtue of their specific accomplishments, but how many such exist, compared to the thousands in active practice?

Numerically we are but forty-two, when all vacancies are filled.

Schwarzkopf's elucidation of the possible immunization and therapeutic effect of mallein may be classed among the recent definite results, distinctively correct and given as much credence as foreign reports from any source whatsoever.

The field for research among our number may be unlimited, but laboratory facilities and fund appropriation are lacking, also owing to the fact that at present we possess no definite organization, etc., are all important factors in antagonizing such energy.

Surra made its inroads and decimated our animals during the early days of Philippine invasion; cholera, amœbic dysentery and malaria played havoc among men as well during that period. The same conditions are prone to exist during any active period of invasion. To-day the situation has changed.

During a conversation recently, with one of our nation's legislators, it was stated that comparative medicine could not, nor never would be given the same consideration, owing to the fact that human life is sacred, while ordinary animal life is not. The latter represents a definite money value only; the former, it was no doubt overlooked, also means a pension.

While much remains to be accomplished (quoting Rhodes before death), "so much to do and so little done," time still exists, the future is before us, our men are active and painstaking, and the time is near when more will be achieved.

Recent federal appropriations may again interfere with desired Army legislation in behalf of the veterinarian, but the foundation for this coming act has been established and there comes another year.

L. E. WILLYOUNG, V. A. C.

* * *

ARMY NOTES.

DRS. C. H. LEAVITT, Portland, Oregon and G. A. Swingley, Freeport, Illinois (C. V. C.), are located in Seattle, Wash. Dr. Leavitt is veterinarian in charge of 500 U. S. Army horses at Fort Lawton. He will sail on the transport *Dix* with them for Manila, P. I., in the near future. Dr. Swingley is nicely located in a down-town office, at 1907 First Avenue, and is building up a good practice.

DR. LEMAV, of the Artillery Corps, who has just completed a 500-mile march with two batteries of Field Artillery from Fort Douglas, Utah, to this post, has departed for Fort Ethan Allen, Vt. The horses of the command came through in excellent shape, averaging 25 miles a day, which is an excellent record considering the time of year and the country travelled through.—(FRED FOSTER, *Vet. Artillery Corps, Fort D. A. Russell, Wyoming.*)

VETERINARIAN CHARLES H. JEWELL, 13th Cavalry, is ordered to proceed at the proper time to New Haven, Conn., as a representative of the army veterinarians to attend the meeting of the American Veterinary Medical Association, to be held at New Haven, Aug. 21 to 24.—(*Army and Navy Journal.*) Dr. Jewell will present a paper entitled "The Veterinary Service of the United States Army and the Military Veterinarian." It will embrace what the service has been, what it is at present, and what it is expected to be in the future.

DR. J. E. RYDER, New York, has removed his office from the American Horse Exchange to Bull's Head Market, 24th St.

DR. V. A. MOORE, of the New York State Veterinary College, is at Anaconda, Mont., investigating the smoke-poisoning cases among animals, claimed by the stockmen to be produced by the smoke from the copper smelters, and who are suing the mine owners for a large amount of money.

DIPHTHERIA ANTITOXIN IN THE TREATMENT OF TETANUS.—At the Cleveland meeting of the A. V. M. A., Dr. E. L. Quitman, of Chicago, very guardedly gave his experience with diphtheria antitoxin in four cases of tetanus, all of which recovered, and from the relaxation effects produced had given unmistakable evidence of the influence of the serum upon the clonic convulsions. Undoubtedly Prof. Quitman has pursued the subject, as the disease is very prevalent in the section where his practice chiefly lies, and we may expect an interesting report from him at New Haven concerning his later experiences. In the meantime, Dr. W. G. Hollingworth, of Utica, N. Y., informs us that he has had four successive recoveries and no failures, and, while some of his cases were subacute and might have terminated favorably under other or no treatment, one at least was severely acute and of the nature of those which usually die under other approved methods. The principal objection to the use of this serum is that the size of the dose (about one ounce) makes it a very expensive therapeutic agent.

THE ETIOLOGY OF AZOTURIA.

In a letter published in the April REVIEW, Dr. R. T. Whittlesey, Los Angeles, Cal., gave his experiences with azoturia on the Pacific Coast and in the Southern States. He propounded the following queries to the profession of the country :

- “ Is azoturia common in your locality ?
- “ Is it very fatal ?
- “ Have you ever seen it in mules ?
- “ What kind of hay and grain is fed in your State mostly ?
- “ What season of the year is it most prevalent ? ”

* * *

REPLIES TO DR. WHITTLESEY.

From J. B. L. Terrell, V. S., Dresden, Tenn.

“ In my practice horses are mostly affected—only 3 mules, 2 jacks. Causes are mostly idleness and pea-hay feed, with abundant crop of peas on the vines. Deaths are very few when treated in 48 hours after being attacked.

“ I have had 56 cases with horses and mares—38 horses, 18 mares; mostly old favorites; 12 were under 7 years—5 mares, 7 horses; others were from 7 to 24 years; 6 deaths, 4 horses, 2 mares. Of the two jacks, one was 11 years old, which had a second attack and died; the other was only 3 years old; both wintered on pea-hay. The early spring is the most prevailing time; a few cases early in the fall before frost; stock running on peas and not at work.

“ The above is about 18 years' experience. The disease has been most prevalent in this region for the past eight years, and peas have furnished the principal hay crop.

Previous to eight years ago I had only treated 5 cases, against 51 since.

“ One mule died. I had one case in a stallion early in the spring. He had been kept up in the barn for eight weeks, and when taken out for exercise gave out in less than a mile; did not get him back in barn for two days, and then recovered. I had another case last spring, which was dying when called; had not received any exercise for some time, preparing to show the first of March. When taken out was very game, and was ridden about 15 minutes; collapsed; got him home; in three days I was called; died at night.

“ The hay mostly fed here is timothy and clover.”

From J. F. DeVine, D. V. S., Goshen, N. Y.

I submit the following replies to Dr. Whittlesey's questions:

1. Yes.
2. In heavy horses only.
3. No.
4. Timothy and red top, oats, bran, hominy, and middlings.
5. Have more cases from middle of February to middle of April than in the rest of the entire year.

*
From Dr. A. E. McCall, Memphis, Mich.

Azoturia is quite common in this section, but not very fatal—about 10 per cent. get down and 2 per cent. die. There are very few mules in this locality, and I have never seen a case in a mule. The chief feed here is mixed timothy and clover hay, and oats. Have had cases in every month of the year, but it is more common in April, May and June.

CORRESPONDENCE.

IRREGULAR PARTURIENT PARESIS.

GALLATIN, TENN., June 11, 1906.

Editors American Veterinary Review:

DEAR SIRS:—Reading in the June REVIEW a communication from Dr. Van Antwerp on "Peculiar and Irregular Parturient Paresis," I thought I would add my mite of information by recording a case.

On Feb. 21, I was called to see a pure bred Jersey cow, five years old. Found her down, unable to regain her feet, with nearly all the symptoms of parturient paresis. On information from owner, found she was what is called in this country "a stripper," giving one gallon of milk at milking, and would be due to calve in two months. Not knowing any better treatment, I gave her the treatment of air, and, to my surprise, she responded in two hours. And on April 23d she gave birth to a healthy calf, with no returns of the symptoms.

L. T. LEWIS, V. S.

BULLETIN 113 of the Agricultural Experiment Station of the Colorado Agricultural College, treats of "Larkspur and Other Poisonous Plants," and is by the Station Veterinarian, George H. Glover, M. S., D. V. M. It also contains a synopsis of symptoms and treatment for poison weeds, and a bibliologic reference table.

SOCIETY MEETINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The Association convened for its ninth annual session at the Merchants' Hotel, St. Paul, Jan. 10, 1906, and was called to order by President Lees. Roll-call showed thirty-eight members present, with Dr. Peters, of Nebraska, as visitor.

The next order of business was the President's address, but owing to his indisposition he asked to be excused.

Dr. Annand, Treasurer, made his report as follows:—To balance in treasury and receipts, \$174.06; by expense, \$53.10; balance in treasury, \$120.96.

In the absence of the Finance Committee, Dr. Cook was appointed to examine the Treasurer's report.

Dr. Lees then called upon Dr. Whitcomb, chairman of the Committee on Diseases, for his report.

Dr. Ward: I see that Dr. Whitcomb is not present, and I will offer a partial report for him. During the last quarter there have been 319 horses inspected on account of glanders, of which 45 were killed on inspection. There were 221 tested, of which 82 reacted, and 49 were killed; 41 are quarantined for retest. The total number of horses killed during the last six months was about 220. . . . For tuberculosis, I can only give you a report for the last three months. There were 3188 head of cattle tested, of which 444 reacted. In the vicinity of Hutchinson Dr. Lyons tested in the neighborhood of 470 cows, of which 135 reacted—almost 33 per cent. . . . We have had quite a lot of trouble with hog cholera during the last six months, especially in the south-west corner of the State, principally in Lyon, Lincoln and Lac qui Parle counties. The disease has been there for the last three years, and we thought last year we had it about cleaned up, but I presume the warm, dry summer had something to do with the spread of the disease. I have thought that possibly a better way of controlling hog cholera would be by disinfection. I have planned, if we can possibly do it next summer, that when we have an outbreak of hog cholera to send a man down there and kill off all the hogs which are showing symptoms of the disease, and thoroughly disinfect the hog pens, etc., and disinfect them every day until we are satisfied the disease is well under control. Our present

method of controlling the disease has been to quarantine the infected premises, notify the chairman of the existence of the disease, issue certain regulations regarding the tying up of dogs, and visiting infected premises. I have thought that if we could visit those infected farms every day and watch the quarantine, thoroughly disinfect and see that the dead hogs were buried, and kill those showing symptoms of the disease, we might possibly control it better than now. . . . I found a nice case of measly beef in the city of St. Paul about a month ago. This was a milk cow that was in the possession of an owner for some time. Owing to the fact that she was not giving much milk, he dried her up and killed her. He came to the office and put in a claim for reimbursement on account of tuberculosis. The description that he gave was so different to that usually found in tuberculosis, that I decided to investigate and found that he had a case of measly beef. I do not believe there have been any other cases reported in Minnesota. The large muscles, when cut through, presented the appearance as though a lot of peas had been pushed in—small yellow nodules about the size of a pea. On microscopic examination you could see the calcareous corpuscles and a breaking down of the contents. We could not find out where this animal came from, or we might possibly have found some other cases.

Pres. Lees then called on Dr. Cook for his report on Medicine.

Dr. Cook: I am sorry to say that I really have no report to make that would be of any benefit to this Association. I think that practitioners are not in position to experiment with veterinary medicine. They should leave this to the teachers and professors of the different colleges, who are in a position to investigate those things thoroughly. I wish to speak about the practice of writing prescriptions. There is one thing I would like to impress upon the members of this Association, and that is, do not write prescriptions. I believe you are doing an injustice to yourself, your fellow practitioners, and also to your client.

APPLICATIONS FOR MEMBERSHIP.

Applications were presented for consideration, and, after due examination, it was moved, seconded and carried that the following be elected to membership:—

Dr. C. S. Shore (U. P.), Lake City; vouchers, Drs. J. W. Gould and S. H. Ward.

Dr. B. W. Kirby (Chic. V. C.) St. Paul; vouchers, Drs. W. Amos and A. F. Lees.

Dr. Harry H. Dell (McGill), Mankato; vouchers, Drs. J. P. Graff and M. F. Leffingwell.

Dr. Emil Mueller (Chic. V. C.), New Ulm; vouchers, Drs. J. P. Graff and M. F. Leffingwell.

Dr. Wm. Sonerall (Chic. V. C.), Cambridge; vouchers, Drs. O. Rydell and J. G. Annand.

Dr. W. A. Kuhns (O. V. C.), Chaska; vouchers, Drs. J. H. Neumann and S. H. Ward.

Dr. J. Burton (O. V. C.), Wheaton; vouchers, Drs. O. Rydell and S. H. Ward.

Dr. Gould moved that a reporter be employed for each meeting at a cost not to exceed \$20.00, until the Association takes some further action in the matter. Seconded by Dr. Mack and carried.

Pres. Lees called on Dr. Lyford for his report on Legislation and Empirics, and the Doctor presented the following report:—

LEGISLATION AND EMPIRICS.

I am very sorry that I am asked to report to you again on this same "old chestnut", the "quack". That I should have been continued as chairman of the committee by each succeeding President seems little short of a mania for reappointing, as was the case for years. With the chairmanship of the Committee on Colleges and Education, I now wish to give formal notice that I shall not continue this combined dose of emetic longer, so that when this report is in you may feel relieved, so far as I am concerned. The law of 1903, which requires that a graduate shall be from a three year college or university requiring a six-months' session each year, makes no mention of an examination. Accordingly no examination is really compulsory for such applicants. I think the chairman of the Committee on Legislation and Empirics should be the Secretary of the Examining Board, who has an opportunity of obtaining knowledge in this line that others do not. I think we should at the same time ask of our Examining Board, at each yearly meeting, to report to us a list of the new members to our profession, and other things of interest that come before said Board. In this way we will become acquainted with work done by the Board and have a list of new men who we may expect to meet in practice. Another very important subject that seems to have been ignored, that would prove of great importance to us professionally, to experi-

mental workers especially, is the remedies with which we should be made acquainted at our yearly meetings. If our State Experiment Station is not to be of service in this particular, I think such experiments should be arranged for by the Association and the expenses paid. In this way new fields would be opened to us. The empirics in our State are favored in every way by non-prosecution and by our City Veterinarian employing such to assist in test work, and by our City Fire Department employing a non-licensed empiric at a salary of \$1500 per year. No attention is paid to these things, so we may expect an increase in numbers, unless some steps are taken to remedy this evil. The two darkey empirics from St. Paul, whom Dr. Ward prosecuted when Secretary of the Examining Board, still travel through the State, taking in many of the large stables, pretending to wash sheaths and fix teeth at from 50c. to 75c. each animal, and doing as many as one hundred horses in one day. You can well imagine the quality of the work and the effect upon dentistry work in general. I have no doubt that some of our city pretenders give St. Paul people a like amount of valuable services.

President Lees then called on Dr. Reynolds for his Report on Colleges.

REPORT ON COLLEGES.

Dr. Reynolds: I have a very brief report to make. The important item that I can report in the way of college news is that the Washington School at Pullman, Washington, has established a four-year course, making two four-year-course colleges in operation in this country.

Dr. Lyford: I wish to ask Dr. Reynolds if it is true that the Toronto school has made a three-year course?

Dr. Reynolds: I have no authentic information as to that. You no doubt saw the article in the REVIEW referring to that.

ELECTION OF OFFICERS.

The election of officers being the next order of business, resulted as follows:

President—Dr. Richard Price, St. Paul.

First Vice-President—Dr. E. L. Kalb.

Second Vice-President—Dr. J. W. Cook.

Secretary and Treasurer—Dr. C. A. Mack, Stillwater.

Board of Trustees—Drs. C. A. Lyon, M. S. Whitcomb, M. J. Sexton, and the President and Secretary, *ex-officio*.

The meeting then adjourned until 7.30 P. M.

The newly elected President, Dr. Price, called the meeting to order at 7.30 P. M., and called upon Dr. Peters, of Nebraska, who gave a very interesting talk on hog cholera and also many valuable points on the proper care of hogs, etc.

Dr. Price then called on Dr. Amos for his paper on "The Relation Between Human and Bovine Tuberculosis."*

Dr. Beebe then presented a paper on "Immunity," which led to a lengthy and valuable discussion, all of which will be printed in a later issue.

Dr. J. G. Annand then presented the following paper on

CORNS.

"A corn is an injury to the tissues of the foot at the heel between the wall and the bar. The living horn and soft tissues are involved with a rupture of the small bloodvessels. If nature is strong enough and the injury slight, there is simply a small amount of soreness and local fever and a stained condition of the surrounding horn. If the injury is more severe and a greater area involved, there may be an effusion between the sensitive and insensitive tissues. If no relief is given and the injury is continued, there may be suppuration. The front feet are usually the subjects of the disease, but none are exempt.

"The heavier breeds of horses are most liable to the disease for the reason that the hoof is not so compact as the lighter breeds; also the feet are more liable to be wide and flat and weak at the quarters. Poorly fitted and high heel shoes aggravate the conditions. In the driving horse, contraction is one of the greatest factors in causing corns; but all feet are liable to be bruised, which terminate in corns. Shoes left on too long and the hoof allowed to grow out over the shoes, shifting the weight from the walls to the sole, is also another cause.

"In examination for soundness, the examiner should not fail to look for corns. Pain may be very slight in an old chronic case where the tissues involved are very limited in area and the animal may have become so accustomed to it to present any evidence of the disease. But you will see fever rings in the wall of the foot. The animal may point the foot forward and outward with the weight off the foot and the fetlock flexed, or, in more severe cases, where they refuse to put scarcely any weight on the affected member.

* This paper, and that of Dr. Ketchum, on the "Increase of Tuberculosis in Swine," together with the interesting discussion thereon, will appear in a later number — [EDITOR REVIEW]

"Tapping the wall over the seat of a corn with a hammer will reveal pain or moderate pressure between the jaws of a pair of pincers will also give evidence of disease. With the shoe removed and with the hoof knife in readiness, then the real condition of things is revealed. If the sole is dry, hard and brittle, and the whole thickness is discolored, is evidence of an old corn. If an amber colored fluid is present, the injury is of more recent occurrence.

"The suppurative corn is the one that is of more concern to the veterinarian, as the pus collects and works its way in all directions, but usually finds its way to the heel and makes an opening between the coronary band and wall. The soft tissues may be involved and even necrosed, which often extends to the area of the os pedis, lateral cartilages, or cushion of the foot.

"I do not pretend to be an authority on the treatment of corns, but will describe the course I take in dealing with this disease. In all forms of corns, with the rasp and knife, I remove the wall of the hoof and also the sole so as to relieve all pressure.

"Remove sufficient of wall and sole so the blood oozes out of the surface. I treat the entire quarter in this way. Then with hot poultices of flaxseed meal, I can have some success in reducing the local inflammation. After the acute pain has been alleviated by means of the hot poultices, I apply a good strong counter-irritation all around the coronary band, which should be repeated in two or three weeks. Remove all necrosed tissue and treat with 1-1000 bichloride of mercury solution.

"If both heels are affected and the soreness has nearly disappeared, which usually takes about three weeks in severe cases, put a bar shoe with lots of frog pressure and put the animal to work. If only one quarter is involved put on a half bar shoe. In old dry corns, it is not necessary to lay the animal up."

Dr. Annand: The main object of this paper is to start a discussion, as much more might be said. I have had fairly good results with that form of treatment. I may not have fully described the treatment in detail, but if I can explain it through discussion will be pleased to do so.

Dr. Cotton: I would like to ask the Doctor if he believes in cutting the quarter off so that it will not press upon the branch of the shoe and putting a bar shoe on, or just simply cutting the pressure off without removing the quarter?

Dr. Annand: I used to do that and it appeared for a while that the condition was relieved, but I always found that as soon

as the hoof grew down so that the pressure came on the shoe you had the same condition coming back again. That was one condition that induced me to remove the quarter so that when it did get down it accommodates itself. If you don't cut it off you still have the pressure put on the coronary band and you have no relief whatever. I have found that removing the pressure on the wall out to where you think there is no pressure you can put on the shoe and when it does get down I have not found any trouble. It usually came out in good shape.

Dr. Cotton: In Mohler's "Surgery," he condemns such procedure, claiming that the wall is pushed upon and breaks away from the laminæ, producing a seedy quarter. But oftentimes we are compelled to do something like that. If we do the radical thinning of wall from the coronary band to the ground, the horse is liable to be laid up a little while; we often meet cases that are slightly lame and owner cannot lay the animal off duty, when, if we relieve the pressure on quarter the animal will go sound. That is why I asked the question.

Dr. Annand: In those cases of which you speak, in which you thin the wall clear from the coronary band, those are the cases where you have slight lameness. I put on a shoe and keep them at work.

Dr. Cotton: By working them immediately, don't you sometimes have the wall at the quarter break and produce quarter cracks?

Dr. Annand: No, I have not as yet. I am treating one case now and it was very much contracted. I thinned the wall of the inside and outside quarter of the right front foot and sent this horse home and had it poulticed. I went up three days afterwards to apply the counter-irritant and I could see the outline of the cartilage. When I saw him three days afterwards he was going as though nothing happened.

Dr. Price: I would ask Dr. Cotton if in trimming the hoof when he makes the beveled edge, how does he get it sharp and leave the heavy wall? That is to say, if in removing it he thins and makes a beveled edge on the wall that is left.

Dr. Cotton: In other words, make a gradual union. If you put that animal to work before waiting until you get a new growth you are liable to get a break. I noticed it on a low weak heeled horse, especially, but not on high heeled horses, because they do not have a thin wall.

Dr. Annand: I noticed quite a number of times in those weak quartered horses that if you remove the wall and put on a

counter-irritant and repeat in about three weeks, the wall grows down considerably heavier than before and you have gained on that point, besides relieving the condition of the corn.

Dr. Lyford: You most always find a correspondingly thick heel and with this condition, where heels are high and thick, your quarters are pinched and then you get a decidedly cramped quarter, but in a low heel and thin horn the pressure produces a lack of circulation in the heel with correspondingly slow growth, while the increase in the circulation of the toe gradually increases the rapidity of its growth, also the thickness, while the heels get thin and slow growth. Relieving that pressure naturally diminishes the circulation at the toe and you can get a better quarter. I have found that that relief from pressure has apparently more to do with the increased thickness than blister, though the blister sets up apparently increased circulation and healthy condition, which induces a speedy cure. I find that your stimulant from the blister is very essential, but the relief and the increased circulation continues in proportion to the conditions you keep the foot in afterwards. We have some horses which are subject in their natural conditions to new quarters. We have some families which I have spoken of before in this association, especially the Hartford family, the majority of whose colts' feet are poor in quarters. The horse would get sore and lame as soon as he was worked. If we have inherited these conditions, naturally they must be guarded against. I have raised a Hartford filly and suggested that her toes be kept short and heels in good shape. I think she has remarkably good feet, one of the best of Hartford's family. Those things are of importance, for the reason that circulation, when it becomes pinched and cramped, renders the horn so thin that if the capillaries are pressed the heel becomes weak and the toe gets correspondingly increased. I think Dr. Annand's point is well taken, that the relief of the quarter is essential in most all forms of corns. Of course, the condition and quality of the foot has a great deal to do with the way you do it and the extent of cutting. I sometimes feel as though I had done more cutting than the owner would desire, and still have not done too much. Of course, occasionally we do not get the results that we want. The owner feels that after we have done the cutting we have ruined the horse, and immediately takes other steps, which certainly induces the animal to go on further and not be relieved by the operation.

Dr. Cotton speaks of the question of allowing the horse con-

tinuous rest for a time, and in some cases it is very desirable. In some cases we cannot induce the owner to allow the horse to have that much rest, and I know we have had the very best results in some of the cases where rest was given from two weeks to three months, where in other cases we have had as good results without rest.

Dr. Cook: This subject of corns is a very interesting one, especially to the city practitioner, who has so much trouble with corns. I would like to ask Dr. Annand if he has not observed that a great many of those corns are not produced by the blacksmiths,—the wall of the foot is allowed to grow so long that it of itself is doing most of the growing. I think Dr. Annand's treatment, bichloride of mercury, is weak, especially in cases of suppurating corns. I know I used much stronger solution, and left it on for a couple of days and had good results.

Dr. Annand: Where you have drainage established I find 1:1000 is plenty for the reason that I figure that if the tissue is exposed I would not want to put anything on there that would affect it. In regard to the bar I have never had very many cases which I thought were due to the long condition of the bar. I have had a number of cases which I think were due to the condition of the wall, a sort of turning so that the weight rests on the portion of the wall that was turned in.

Dr. Price: In regard to corns, there is no question but they are often due to contraction of the heels. What is the cause of contraction? Sometimes undue dryness of the hoof, but more often you will find when the horse is shod he is shod with a shoe such as Dr. Annand described as producing the condition in which the walls turn in. They curve in on themselves, and the animal is constantly stepping onto an inverted cone, causing the outside and inside walls to curve on themselves. If the shoer would give them a level bearing you would overcome that condition, and by making sections of the wall wherever the outside curves, shows there is an unnatural reflection of the wall, and by bringing it to a more natural curve you could make section here, for instance; and relieve that. The bar is supposed to hold the heel to prevent it breaking. The bar keeps the hoof from extending too much. The first thing I do is to ~~make~~ section between the bar and the wall, cut it clear through, allow the hoof to extend. It is a fibrous band and intended to keep the hoof from expanding too freely. Of course, removing the quarter relieves the pressure. You can relieve the pressure by making section of the wall, cutting through to

the soft tissue underneath from the coronary band to the solar surface of the hoof which comes in contact with the shoe, and by properly shoeing with a slightly outward bevel in place of having the inward bevel. It is simply a mechanical proposition. By making section of the wall you do not lay the animal up. By section of the wall I mean by cutting the wall with saw or knife from the coronary band to the bottom of the hoof. Of course, you can gain the same thing by removing the wall and laying the animal up.

Dr. Cotton: Did I understand you to say you severed the connection between the bar of the foot and the wall of the foot at the buttress of the heel?

Dr. Price: Yes.

Dr. Cotton: I do not agree with Dr. Price. I was always under the impression that the bar of the foot through the medium of the frog helped expand the quarter. The bar is a reflection of the wall and extends forward about two-thirds of the length of the frog, where it stops and meets the sole. If you want to dilate the horse's foot and have sufficient frog to get a frog pressure by means of a bar shoe, cut the quarters down so that they will not press on the branch of the shoe, place your bar shoe on, pressing directly on the frog, and you will succeed in dilating your foot at the quarters. The reason of this is that the bar of the shoe pressing on the elastic frog exerts an outward pressure on the walls at the quarter through the medium of the bars of the foot. It seems to me that it is exactly wrong to sever the connection between the wall and the bar at the buttress, as it allows the quarter to collapse and you do not get the outward pressure on the quarters produced by the frog pressure directly through the medium of the bars of the foot.

Dr. Annand: In cutting the bar from the wall you only give relief at one point, whereas if you take and remove the quarter clear from the frog to within two-thirds of the way to the front of the toe you give relief along the whole band of contraction. By removing the whole quarter you just give the soft tissues an opportunity to expand, whereas if you just cut from the heel then you have to allow the tissues to force out the contracted part of the hoof. It is smaller than it really ought to be. In removing a quarter I do not make an abrupt cut between the portion I remove and the portion I leave. It is a gradual bevel to the place where I want the real excavation to begin.

Dr. Price: I said I first made a section between the bar and wall, but I also made section of the wall where there was an incurvature of the wall. I practically do the same as Dr. Annand, but I leave the wall. I sever the wall at the bottom, but I do not remove it.

REPORTS OF CASES.

Dr. Ward reported a case for Dr. Lipp, who was called away. A specimen was presented with the following history:

Peterson Horse—Case for Tenotomy.—Part affected, perforans, right front. Duration of trouble: Horse was first noticed to be favoring right front foot in early spring of 1904, latter part of March. Had been working regularly previous to this time, and was kept working subsequently for about a year. The tendon continued to contract all this time and the heel was allowed to grow down to relieve it. In March, 1905, horse was decided unfit for work, and from then till December, 1905, he stood idle, in a stable on a sloping wood floor. During this period of idleness, nearly all of the contraction seen in the accompanying specimen took place. The horse was killed in December, 1905. Post-mortem findings: Right front limb—Small splint, ringbones on both phalanges, very large sidebones with exostosis spongiosum growing back, down and inward from one sidebone. Left front limb—Same as right, including exostosis spongiosum, except larger splint and smaller sidebones.

Horse weighed at time of death about 1500 pounds; age, about 13 years; in fine condition, and apparently sound except as above described.

Ventral Hernia.—Dr. Shore: I had two cases. The first was a two-year-old colt which was quite a ways in the country and I did not get there until just about dark. It had evidently been torn by a cow's horn. The skin was torn for about three inches and then torn under the skin for about a finger's length, and then a tear about three inches through the peritoneum. The only thing I could do was to throw the colt and tie it up and get in there. In doing that I made incision about ten inches long. The intestines would come out repeatedly and I could only get a stitch in at a time with continuous stitch. The tear through the peritoneum was about three inches long, and after three-fourths of an hour I got it closed up. The colt was filled up, as it had been on pasture. It had been hurt perhaps 24 hours before I saw it, and perhaps 36. It was very difficult

to sew on account of the swelling around the wound, but finally sewed up the outside and left drainage at each end. I did not have much hope of the case. My main object was to get through with it, and when the farmer reported he said that the colt had never missed a meal and had made a fine recovery. . . . After perhaps a month I was called to another case within a mile of the same place. I got the call late Saturday night and I had to go by train to Kellogg. I could not go that night, so went the next morning. This colt had a large swelling on the side and the farmer thought it was an abscess of some sort and stuck a knife into it, and found something more than he could take care of. I went down the next day and found the muscle ruptured so it left about one foot of omentum through the muscle. They did not know how long it had been hurt. I opened the enlargement by means of an incision 10 or 12 inches long. I then removed the unhealthy portion of the omentum, and replaced the healthy portion. I then sewed up the muscles with catgut, and closed the outside opening with the tape sutures. After about a month the owner called me up by 'phone and said the swelling was about as bad as ever, and I figured that the inside must be closed and it was perhaps due to a collection of pus. He said the outside openings had about closed and I told him to have somebody open them for him. They found a collection of pus and said the bunch went down right away. In perhaps a week after I was there and stopped to see the colt and found both of the openings of the wound were open and discharging pus. By probing I found the muscles were entirely healed. But a fistulous track had formed along the entire line of my incisions, which was lengthwise with the body, and a track had formed downwards from this into a pocket of pus. After giving this drainage it healed readily and the owner reported in a couple of weeks later that the colt had made a fine recovery.

Dental Cyst.—Dr. Amos: My object in presenting this specimen was to leave it with Dr. Reynolds to take to the museum, for I thought it was a good specimen of dentine formation, and I think you can see what the case is. The horse had been affected about four years.

REPORT ON LAST YEAR'S CLINIC.

Dr. Price: I would call on Dr. Sexton and Dr. Cotton to report on our last clinic.

Dr. Cotton: Concerning the large bay horse, would say

that he was brought to my hospital six weeks prior to the meeting. I trephined into the inferior maxillary sinus and sent the animal home with instructions to keep it open and inject anti-septic solutions. The attendant let the opening heal and the evening before the clinic the animal was brought back to the hospital. At this time the temperature was 105° F., and the side of the head was so swollen that the eye was practically closed. The bony plate was necrotic. My assistant, thinking he would relieve the animal a little, put a knife or his finger through the necrotic tissue into the superior sinus. This was the condition when the animal was brought to clinic. You simply opened it, removed all the necrosed bone and left a hole almost large enough to put one's fist into. I kept the animal about a week, flushing the sinuses daily with antiseptics and astringents, then sent him home. Evidently it necrosed through into the nasal cavity. The attendant has allowed it to heal up again, and I understand it is just beginning to swell and discharge from the nostril. I have not seen the case since a week after it left the hospital. Results would have been better if the animal had had better care and the antiseptic irrigation of the sinuses continued longer or until such time as all necrosis had ceased. The animal has been working ever since he left the hospital.

Dr. Price then announced that the clinic would be held the following morning at Dr. Pomeroy's infirmary at 9 o'clock.

The meeting then adjourned.

CLINIC.

Jan. 11, 1906, the Association met at Dr. Pomeroy's infirmary.

Case No. 1—A horse was presented for examination and diagnosed as pharyngitis.

No. 2—Dr. Pomeroy operated on two projecting molars.

No. 3—Dr. Ilstrup floated a mouth of irregular teeth.

No. 4—Dr. McDonald floated two mouths of irregular teeth.

No. 5—Dr. Nickerson, assisted by Dr. Gould, operated on a seedy toe of a mule.

No. 6 was a sorrel horse which showed a peculiar stiffness in the neck. It was desired to have the members express an opinion as to the seat of injury. Several members present gave as their opinion injury to cervical vertebræ involving the spinal cord.

No. 7 was a bitch spayed by Dr. Sexton.

No. 8 was a chestnut horse, lame in both fore feet. Several

of the members diagnosed this case as navicular arthritis and suppurating corns.

No. 9 was a yearling colt suffering from ventral hernia of six months' duration. Dr. Lyford, assisted by Drs. Amos and Shore, operated by casting the animal and putting it under the influence of chloroform. The part was clipped, cleansed and disinfected. A small incision was made, through which, with a pair of curved scissors, the skin was loosened from the muscle to a point two inches around the rupture in the muscle. The skin was then pulled up and all the tissue pressed through the opening inwardly. Two skewers were inserted and a cord drawn around above, making the skin tense as possible. The colt was then put on his feet, the part bandaged. The animal was then supported in slings.

No. 10—Dr. Whitcomb floated a mouth.

No. 11—Dr. J. N. Gould performed median neurectomy. Anæsthesia was obtained by injecting five per cent. solution of nirvanin.

No. 12—Drs. Annand and Whitcomb performed the operation described in Dr. Annand's paper in above report for corns.

C. A. MACK, *Secretary.*

AMERICAN VETERINARY MEDICAL ASSOCIATION.

PHILADELPHIA, June 20, 1906.

Editors American Veterinary Review:

DEAR SIRS:—Since sending my letter for the June REVIEW a few more titles have come in, so that now the program stands as follows:—

“Our Insect Enemies”—W. H. Dalrymple, Louisiana.

“The Agglutination Method for the Diagnosis of Glanders”—V. A. Moore, W. J. Taylor, W. Giltner, New York.

“Some Bovine Surgical Operations”—J. C. Robert, Miss.

“Tuberculosis in Swine”—Richard Ebbitt, Nebraska.

“The Angora Goat and Sheep Industry of New England in Danger”—James B. Paige, Massachusetts.

(Title not given)—P. A. Fish, New York.

“The Veterinarian as a Business Man”—D. Arthur Hughes, Illinois.

“Eradication of Mange Among Cattle in the West”—A. T. Peters, Nebraska.

“Symptoms and Gross Post-mortem Lesions of Hepatic Cirrhosis of Cattle”—W. H. Pethick, Nova Scotia.

"The Veterinary Service of the United States Army and the Military Veterinarian"—Chas. H. Jewell, Kansas.

"Practical and Applied Surgery"—C. C. Lyford, Minnesota.

It is seen that but eleven papers are promised. There should be at least twice that number. It is very desirable that more of those who are interested in the success of the meeting respond to the demand for papers and that their titles be sent in at once. The program must be completed by July 25th in order to be duly printed and distributed before the meeting. It must be that many of our members have something of value and interest to communicate and it is earnestly hoped that they will take the trouble to do it. It is certain that the Association is the most exalted channel through which the results of a scientific or practical observation or research can be given to the profession, and the fact that so few take advantage of it is amazing.

There is nothing to add to what is set forth in the June REVIEW in reference to the local arrangements, but all may feel assured that they will be lacking in no detail looking toward the care and comfort of those who go to New Haven in August. Dr. J. H. Kelly, 70 Olive street, New Haven, has charge of the hotel arrangements and those who wish to make reservations in advance can do so through him. It would be wise to do this.

Applications for membership must be in the secretary's hands by July 23, 1906. The number received so far is much smaller than it should be. Some earnest work between now and July 23 will bear good fruit.

Negotiations in reference to reduced railroad rates are in progress with the various passenger associations and there is every reason to believe that the usual concession of one and one-third fare for the round trip, certificate plan, will be made.

Let all the members pull together in a strenuous campaign for more members and more papers for the program, so that the New Haven meeting will be the banner one in the history of the Association.

Respectfully,

JOHN J. REPP, *Secretary.*

ALUMNI ASSOCIATION OF THE NEW YORK-AMERICAN VETERINARY COLLEGE.

The regular annual meeting was held in the College Building on Tuesday, April 17th, at 3 o'clock P. M., the President, Dr. Wm. Herbert Lowe, in the chair. The minutes of the previous meeting were read and approved.

The matter of dues and collection was discussed, and, upon motion, the Secretary was instructed to send out proper notices and bills to date after conferring with the Treasurer and annually hereafter. It was regularly moved and seconded that the Alumni Prize be awarded and continued.

The following were admitted to membership in this association: Dr. John G. Slee (A.V.C. '97), and Dr. Aguilal Mitchell (A.V.C. '95), and the Class of 1906, as a whole.

The Banquet Committee reported that arrangements had been made to hold the annual banquet in the evening at the Hotel Vendome at 7.30 P. M.

The Treasurer being absent there was no regular report of the Treasurer received.

The following officers were elected unanimously to serve for the ensuing year:

President—Dr. W. C. Miller.

First Vice-President—Dr. C. Lamensdorf.

Second Vice-President—Dr. M. R. Powers.

Secretary—Dr. T. F. Krey.

Treasurer—Dr. J. W. Fink.

Under the head of new business, the question of a larger membership was discussed, and it was suggested that if each class had a representative who would be notified of the officers elected and what is going on in the Society it would encourage the members to attend every meeting; and to this end it was suggested that the President take the matter up by calling a meeting of the Executive Committee, to be held at the time of the annual meeting of the A. V. M. A. at New Haven, when some action in regard to the appointment of Resident State Secretaries would be taken, as it was thought in this manner that the membership of this Association would not only be greatly increased, but that the meetings would be generously attended as well.

The President, Dr. W. C. Miller, appointed the following members to constitute the Board of Censors for the coming year: Drs. Wm. Herbert Lowe, chairman; W. J. Coates, R. W. Ellis, W. Horace Hoskins, and T. E. Smith.

Adjourned.

W. C. MILLER, *Secretary.*

* * *

The banquet, held at the Vendome in the evening, was a pleasant and very successful affair, most of the recent classes and many of those of long ago being represented. Dr. Roscoe

R. Bell acted as toastmaster and responses to sentiments were made by Chancellor MacCracken, Prof. W. J. Coates, Prof. James L. Robertson, Dr. W. Horace Hoskins, Prof. G. G. Van Mater, Dr. Wm. Herbert Lowe, Prof. Wilson, Dr. D. J. Dixon, Dr. Robert W. Ellis, Dr. J. F. DeVine, Dr. W. C. Miller, and others. The occasion was a dual celebration, in that it marked the silver anniversary of Dr. Hoskins' attendance upon these events, he never having missed being present for a quarter of a century, a record probably unequaled by another alumnus, certainly not by one who resides outside of the State.

DR. GEO. B. GILLMOR, graduate of American Veterinary College, has been appointed meat inspector of Pittsburgh, Pa., at a salary of \$1800 a year.

TUBERCULOSIS has been found in a rattlesnake at the Washington, D. C., Zoo, thus illustrating the wide range of individuality of the victims of this universal plague.

A GOOD MASSACHUSETTS LAW.—A law went into effect in Massachusetts on April 20, 1906, which makes it a misdemeanor for any person to sell or use a broken-down horse. The enactment of the law was influenced through the Massachusetts Humane Society and its effect is already noticed, auctioneers who formerly did a big business in disposing of diseased and broken-down animals finding their vocation now practically gone. The law reads: "Section 1. It shall be unlawful for any person holding an auctioneer's license to receive or offer for sale or to sell at public auction any horse which by reason of debility, disease or lameness, or for other cause, could not be worked in this Commonwealth without violating the laws against cruelty to animals. Section 2. It shall be unlawful for any person to lead, ride or drive on any public way, for any purpose accept that of conveying the animal to a proper place for its humane keeping or killing, or for medical or surgical treatment, any horse which, by reason of debility, disease or lameness, or for other cause, could not be worked in this Commonwealth without violating the laws against cruelty to animals. Section 3. Any licensed auctioneer violating any provision of this act shall forfeit his license, and any person violating any provision of this act shall be punished by a fine of not less than five nor more than one hundred dollars, or by imprisonment for not more than six months." — — — In the next session of the Michigan Legislature the Humane Society of that State will endeavor to have a similar law enacted.

NEWS AND ITEMS.

WARREN M. JOHNSON, veterinary dentist, died at his home, Pittsburgh, Pa., March 15, after a brief illness of pneumonia, aged 65 years.

DR. D. ARTHUR HUGHES, Veterinary Inspector, Commissary Department, U. S. Army, is spending his vacation trout fishing and shooting in the Maine woods. He will return to Omaha, Neb., about July 15.

DR. W. REID BLAIR, pathologist to the New York Zoological Park, will send to the New Haven meeting of the A.V. M. A., a number of interesting gross pathological specimens which he has secured through his fortunate opportunities. From New Haven they will be shipped to Buffalo for the New York State meeting.

DR. SAMUEL O. WOOD, V. S., of Melbourne, Australia, is on his way to America, commissioned by the Australian government to inquire into the condition of the horse industry here and, if pleasing to him, to purchase some good stock for breeding purposes for the government. Also Dr. Wood is interested in the subject of horseshoers' legislation with a view possibly of having legislation applied to the practice of the trade in Australia.—(*Horseshoers' Journal*.)

DR. GOTTLIEB MEYER, a non-graduate practitioner of Allegheny, Pa., died May 9, from cancer of the stomach. He was a native of Bavaria, and attended the Agricultural College at Munich, and studied animal husbandry, but found no employment in that line when he came to this country, and after blistering his hands for a day at a saw-mill, put out his shingle as a veterinary surgeon, and at one time enjoyed a large practice in Allegheny, Pa. He was aged about 60 years, and leaves a widow and five children.

SUICIDE OF A DOG.—According to the New York *Herald*, a female fox terrier, "Beauty", winner of a blue ribbon at the recent bench show of the Westminster Kennel Club, committed suicide on June 16 by jumping from the fourth story window of the flat of James Gilligan, at No. 353 W. 47th St., New York City. The dog became jealous of a Boston bull bitch named "Daisy", which had been in the household a long time, while the fox terrier was a recent acquisition. Her owner was in bed, fondling "Daisy", when "Beauty" also jumped upon the bed. But "Beauty" was forced away, while Gilligan continued to pet the bull, and the terrier returned and frisked about for recognition;

but her owner cast her aside again. This was repeated a third time, with a like result. "Beauty" whined and ran through the flat to the front window, poised for a moment, looked back, wailed, and then jumped into the street below, landing on her neck and dying instantly.

THE ORIGIN OF MALADIE DU COIT IN CANADA.—In Bulletin II, Health of Animals, Department of Agriculture of Canada, Veterinary Director General J. G. Rutherford gives a lucid description of dourine and its differential diagnosis from the benign coital exanthema. In his introduction he draws the inference that it "must" have been imported from the United States, as is the custom of our Canadian cousins to ascribe all their evils to their proximity to the American border, while all their virtues are inherent to the land of the snow. He says: "This disease, which has long been known in the Old World, was introduced to this continent in 1882 by a Percheron stallion imported from France, and used for service in Illinois. Unfortunately the nature of the affection was not discovered until several years had elapsed, during which period a considerable number of stallions and mares had become infected. Some of these infected animals were removed from the district before quarantine was imposed, with the result that a number of disease centres have been established in various parts of the United States. The large influx of American horses is undoubtedly responsible for the introduction of this loathsome malady to western Canada, where its existence was first reported from Lethbridge district in March, 1904. Since that time active measures have been adopted for its repression, but owing to the nature of the malady and the loose conditions under which the horses are handled in the range country, it is a matter of great difficulty to deal with it effectually. . . ."

DEATH OF THE RACEHORSE "SYSONBY".—The death of this distinguished member of the equine family occurred on June 18th at the stables of his owner, James R. Keene, at Sheep-head Bay. His illness had been of considerable newspaper notoriety, he having been afflicted with a form of eczema which baffled the skill of the most prominent veterinarians of the East, and finally his owner's family physician undertook to treat him, with less success than had followed the efforts of the veterinarians. The exanthem was principally around the coronets and finally passed down beneath the horny structure to the sensitive laminæ of the frogs, resulting in extensive canker of all feet. From continual stamping, induced by the extreme irritation, a

deep seated abscess formed in one frog, and finally septicæmia set in, when the veterinarians were again called in, but it was too late to save the great horse's life. When Dr. Wm. Sheppard, of Sheepshead Bay, arrived on the 17th he found "Sysonby" with a temperature of $105\frac{3}{4}$, breathing hard, pulse fast and almost imperceptible, his body bedewed with perspiration, and unable to rise. The owner was informed that the end was near, and Dr. R. W. McCully, of New York, was called in consultation, but his opinion simply confirmed that of Dr. Sheppard. Notwithstanding the abandonment of hope, efforts were redoubled to avert the inevitable result. "Sysonby" died the following day. A post-mortem examination, held by the two veterinarians, disclosed a remarkable condition of the liver, and while we have not heard if there was a pathological examination made of its structure, Dr. Sheppard informed us by telephone that it weighed sixty-five pounds, about six times its normal size. "Sysonby" was in his four-year-old form, and had raced as a two- and three-year-old, winning \$182,000 in stakes and purses. Mr. Keene refused \$200,000 for him, and on one occasion it is said that John W. Gates drew from his pocket a blank check, signed his name to it, and handed it to Keene, telling him to fill it out and deliver the horse to him, which the latter promptly refused. It is doubtful if a round million would have induced his owner to part with him. It is to be regretted that he had no opportunity in the stud.

BUREAU OF ANIMAL INDUSTRY.—The following circular was issued by the Civil Service Commission on June 14: "The United States Civil Service Commission announces an examination on June 25, 1906, at the places mentioned in the accompanying list, to secure eligibles from which to make certification to fill 150 vacancies, more or less in the position of veterinary inspector (male), at \$1,200 per annum each, in the Bureau of Animal Industry, Department of Agriculture, due to the contemplated provisions in the appropriation for that Department for the fiscal year ending June 30, 1907, and other similar vacancies as they may occur in that Bureau. Attention is invited to the fact that the supply of eligibles for this position has not been equal to the demand. Qualified persons are therefore urged to enter this examination. The examination will consist of the subjects mentioned below, weighted as indicated: 1. Spelling (twenty words of average difficulty in common use) 5; 2. Arithmetic (simple tests in addition, subtraction, multiplication, and division of whole numbers, and in common and

decimal fractions and United States money) 5; 3. Letter-writing (a letter of not less than 125 words on some subject of general interest. Competitors will be permitted to select one of two subjects given) 5; 4. Penmanship (the handwriting of the competitor in the subject of copying from plain copy will be considered with special reference to the elements of legibility, rapidity, neatness, general appearance, etc.) 5; 5. Copying from plain copy (a simple test in copying accurately a few printed lines in the competitor's handwriting) 5; 6. Veterinary anatomy and physiology 15; 7. Veterinary pathology and meat inspection 30; 8. Theory and practice of veterinary medicine 30. Total 100. The last three subjects include general questions on anatomy and physiology, a consideration of the pathology of diseases in general, and such special pathology as is characteristic in the diseases common to food-producing animals. The symptoms, diagnosis, and treatment of diseases incident to domesticated animals will be considered, also the laws and rules promulgated for the regulated inspection of meats. Seven hours will be allowed for the examination. Age limit, 20 years or over on the date of the examination. Applicants must be graduates of veterinary colleges. Those graduating prior to or during 1897 will be admitted if from colleges having a course of not less than two years in veterinary science; applicants graduating since that time must be from colleges having a course of not less than three years, and must have spent at least two years in the study of veterinary science in such colleges. These facts must be shown in the application. This examination is open to all citizens of the United States who comply with the requirements. Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the Secretary of the Board of Examiners at any place mentioned in the accompanying list, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application. As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers."

VETERINARY MEDICAL ASSOCIATION MEETINGS.

Secretaries are requested to see that their organizations are properly included in the following list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	Aug. 21-24, '06	N. Haven, Ct.	J. J. Repp, Phila., Pa.
Vet. Med. Ass'n of N. J.	July 12 13, '06.	Asbury Park.	W. H. Lowe, Paterson.
Connecticut V. M. Ass'n.....	Call of President	New Haven.	B. K. Dow, Willimantic.
New York S. V. M. Soc'y....	Sept. 11-12 13	Buffalo.	G. T. Stone, Binghamton.
Schuylkill Valley V. M. A....	June 20.	Reading.	W. G. Huyett, Wernersville.
Passaic Co V. M. Ass'n.....	Monthly.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n....	Call Exec. Com.	Boston.	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n....	Monthly	Augusta.	F. J. Babbitt, Lynn, Mass.
Maine Vet Med Ass'n.....	July 9, 1906.	Ottawa.	R. E. Freeman, Dexter.
Central Canada V. Ass'n.....	State Fair week	Detroit.	A. E. James, Ottawa.
Michigan State V. M. Ass'n....	April, 1907.	141 W. 54th St	Judson Black, Richmond.
Alumni Ass'n N. Y.-A. V. C.	July 12, 1906.	Bloomington.	W. C. Miller, N. Y. City.
Illinois State V. M. Ass'n....	Call of Pres t.	Sheboygan.	F. H. Barr, Pana.
Wisconsin Soc. Vet. Grad....	.....	Decatur.	S. Beattie, Madison.
Illinois V. M. and Surg. A....	.....	Winnipeg.	C. M. Walton Rantoul.
Vet. Ass'n of Manitoba.....	Not Stated.	.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n....	.....	.....	T. B. Carroll, Wilmington.
Ontario Vet Ass'n.....	Vacation.	141 W. 54th St	C. H. Sweetapple, Toronto.
V. M. Ass'n New York Co....	.....	Columbus.	D. J. Mangan, N. Y. City.
Ohio State V. M. Ass'n.....	1st Wed. ea. mo	Pittsburgh.	W. H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n....	.....	.....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n....	July 12, 1906.	Roch't'r, N. Y.	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n....	.....	.....	J. H. Taylor, Henrietta, N. Y.
Iowa State V. M. Ass'n....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n....	July, 11, 12, '06	Minneapolis.	C. A. Mack, Stillwater.
Pennsylvania State V. M. A....	.....	.....	C. J. Marshall, Philadelphia
Keystone V. M. Ass'n.....	2d Tues. May	Philadelphia	A. W. Ormeston, 102 Her-
Colorado State V. M. Ass'n....	1st Mon. in June	Denver.	man St., Germantown, ' a
Missouri Valley V. Ass'n.....	June 18-19	Omaha, Neb.	M. J. Woodliffe, Denver.
Rhode Island V. M. Ass'n....	June and Dec.	Providence.	B. F. Kaupp, Kansas City
North Dakota V. M. Ass'n....	.....	.....	T. E. Robinson, Westerly, R I
California State V. M. Ass'n....	Mch. Je. Sep, Dc	San Francisco	J. A. Winsloe, Cooperstown.
Southern Auxiliary of Califor-	.....	.....	C. H. Blemer, San Francisco.
nia State V. M. Ass'n....	Jan. Apl. Jy, Oct.	Los Angeles.	.....
South Dakota V. M. A.....	July, 1906.	Brookings.	J. A. Edmons, Los Angeles.
Nebraska V. M. Ass'n.....	.....	.....	E. L. Moore, Brookings.
Kansas State V. M. Ass'n....	Jan. 8-9, '07.	Topeka.	Hans Jenson, Weeping Water
Ass'n Médécale Veterinaire	1st & 3d Thur.	Lect. R'm La-	Hugh S. Maxwell, Salina.
Française "Laval,".....	of eachmonth.	val Un'y Mon	J. P. A. Houde, Montreal.
Alumni Association A. V. Col.	April eachyr.	New York.	F. R. Hanson, N. Y. City.
Province of Quebec V. M. A....	.....	Mon. & Que.	Gustave Boyer, Rigaud, P. Q.
Kentucky V. M. Ass'n.....	.....	.....	D. A. Piatt, Lexington.
Washington State Col. V. M. A.	Monthly.	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association.	.....	.....	E. M. Bronson, Indianapolis.
Iowa-Nebraska V. M. Ass'n....	.....	.....	A. T. Peters, Lincoln, Neb.
Louisiana State V. M. Ass'n....	.....	.....	E. P. Flower, Ba on Rouge.
Twin City V. M. Ass'n.....	.....	.....	S. H. Ward, St Paul, Minn.
Hamilton Co (Ohio) V. A....	.....	Cincinnati.	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n..	August, 1906.	Agricultural	J. C. Robert, Agricultural
		College.	College

PUBLISHERS' DEPARTMENT.

AT this season when horses cannot be spared from their work, and splints, spavins and curbs appear, MIST. ARGENTI COMP. is a wonderful convenience to the veterinary practitioner who is fortunate enough to have it in stock.

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